NEW REMEDIES.

THERAPEUTICS.

ON THE INFLUENCE OF PHOSPHORUS UPON THE ORGANISM.

Dr. George Wegner (Virchow's first assistant) has an elaborate paper upon this subject in Virchow's *Archives* of June 22. The first portion is devoted to a brief discussion of acute phosphorus poisoning, in which nothing new is developed, unless it is that the whole arterial system down to the microscopic arterioles is affected equally with the central organ, the heart, by the fatty degeneration that follows the ingestion of a lethal dose of the poison, and as a result of this, excessive uterine hemorrhage occurs in menstruating subjects, with also hemorrhage in the ovaries. Dr. Wegner then discusses our knowledge of chronic phosphorus poisoning, which rests chiefly upon the monograph of Von Bibra (Die Krankheiten der Arbeiter in den Phosphorzündholz-Fabriken. Erlangen, 1847). Von Bibra fed rabbits for months with phosphorus, but without satisfactory results, as nothing definite was developed.

As is well known, the usual recognized symptoms of chronic poisoning is necrosis of the jaw; but in January, 1871, the following case came under Dr. Wegner's notice:—

A fringe-maker, 18 years old, had received a severe contused laceration of the right leg, from a wagon-wheel. The patient, until a short

time previous, had worked from his fourth year in a match-factory, without showing, however, any indications of suffering from the phosphorus. Whilst the wounds were granulating there came on hospital gangrene, and after this was cured by the use of strong caustics, there were developed high fever and gangrenous periostitis of the tibia, which bared the bone to the knee-joint. Finally amputation through the thigh was performed, and at the operation it was noticed that the periosteum, although normal in appearance and thickness, was but slightly adherent to the bone. Afterwards it separated from the femur clear to the trochanter minor, so that there was left six inches of dead bone, and the patient finally died of hectic exhaustion.

At the *post mortem* there were found gangrenous periostitis of the lower third of the amputated femur, with commencing central and cortical necrosis, putrid osteomyelitis, metastatic infarctions of lungs, kidneys, liver, spleen, and muscles, phlebitis, etc. After maceration there was revealed hyperostosis of the skull, slight ossifying periostitis of the alveolar edges of both jaws, with the teeth intact, and more pronounced osteoporotic layers upon the epi- and apo-physes of the extremities.

This case caused Dr. Wegner to experimentally study the subject, and as the effects of the phosphorus fall chiefly upon the digestive system and the bones, his results are told under two heads.

Influence of phosphorus on the digestive system.

If a rabbit be fed upon gradually increasing doses of phosphorus, or exposed to air loaded with its vapor, there is, after some weeks or months, under proper regulation of the amount ingested, developed a hyperæmia of the mucous membrane of the stomach with hemorrhagic infarctions, and finally the membrane becomes three times as thick as normal, and has a brown color. Simultaneously there is induced in the liver a chronic inflammation, which affects the *interstitial tissue*, attacking first the cellular tissue surrounding the acini, causing hyperplasia of it, and finally atrophy of the gland-cells by pressure, with previous arrest of secretion by pressure upon the vessels and ducts. The organ becomes swollen and livid, sometimes remaining so, sometimes undergoing a gradual transformation into the classical hobnailed liver, sometimes changing into a shrunken, irregular mass, deformed by contracting bands.

Influence of phosphorus on the osseous system.

Dr. Wegner divides this heading into: 1. *Experiments in which the vapor of phosphorus is brought immediately into contact with the periosteum.* 2. *Those in which the drug simply reaches the periosteum through the circulation.*

No. 1. If rabbits be exposed for some weeks to an atmosphere of phosphorus-vapor, after the first state of bronchial irritation they usually

become accustomed to it, and do not seem to suffer, and in the macerated skull the only abnormality to be seen is a fine osteophytic periosteal layer upon the nasal bones. In a very few cases, however, bony swellings appear in the upper or lower jaws, with great enlargement and caseous infiltrations of the soft parts, which changes constantly increase until the animal's eating is so interfered with that it starves to death. After maceration there are found in such jaws enormous osteophytic growths, generally starting from the alveolar margin, and in the lower jaw involving the whole horizontal ramus, in the upper often extending to the nasal, lachrymal, and even frontal bones; there is also partial necrosis of the original bones—in a word, changes similar to those seen in man under like circumstances.

The fact that both in match-makers and animals only a small proportion of those exposed suffer, points to an individual predisposition. This has been found, in man, generally to be caries of the teeth, but sometimes a wound of the jaw, and in rabbits Dr. Wegner has found the same rule to hold good. If a piece of mucous membrane be snipped off the inside of the jaw of a healthy rabbit the wound soon granulates, but if the animal is being exposed to phosphorus-vapors the changes previously noted are set up. That the action of the phosphorus is a local one, Dr. Wegner thinks is shown by the following facts: 1. The periosteal changes do not occur when the phosphorus is given in pill form, even when the periosteum of the jaw is severely wounded after and during the continuous administration of the drug for months. 2. When the tibia is partially bared in the healthy rabbit, by removal of soft parts, a granulating wound results in the healthy animal; but under exposure to the phosphorus atmosphere—periostitis similar in character to that which occurs in the jaw.

From these experiments Dr. Wegner draws the conclusion that the phosphorus necrosis of match-makers is a purely local disorder, and not the expression of a constitutional affection.

No. 2. If an animal be fed with doses of phosphorus too small to affect the stomach and liver for a length of time, certain changes are induced in the bones, changes which appear sooner and are more marked in growing animals than in adults. At the position where spongy tissue ought to be formed in the growing bone, dense, solid tissue arises, which, to the naked eye and microscope, reveals the structure of well-formed bone. The spongy tissue already formed does not change; it is the new bone whose formation is altered. If the feeding be continued the dense mass at the end grows larger and larger, and the old spongy tissue, in accordance with the physiological law, is absorbed to make room for marrow-tissue, until at last the bone has no spongy tissue left. After this the solid newly formed tissue itself be-

gins to be absorbed; the oldest, first developed portions are changed into red marrow-tissues.

During the feeding, changes also occur in the bony substance formed by the outer periosteum; the new bone looks normal, but under the microscope is seen to be filled with dense masses, which encroach upon the Haversian canals, and finally there is a general narrowing of these canals, which affects even the bone formed before the taking of the phosphorus.

In regard to the effect on the bones of the regular ingestion of phosphorus from birth to adolescence, Dr. Wegner made some experiments without very satisfactory results; he explains at length the great difficulties which beset such inquiry, but we have not here space to follow him. Suffice it to state, that the indications seem to be that development is hastened, and still more doubtfully that the actual mass of the bones is increased.

If small doses of phosphorus be given continuously to the adult animal, the spongy tissue in the long and short bones is thickened, and the compact tissue rendered more dense. After a time new bony tissue is deposited on the inside of the shaft of the long bones, encroaching upon the marrow cavity. This may continue until the bone actually becomes solid. The process does not go on *pari passu* in the different bones. The general course is, tarsus, tibia, bones of the forearm, femur, humerus. There is no corresponding hypertrophy of the muscles, and the movements of the animal become, in consequence of the weight of the bones, very slow and awkward. The analysis of the bones shows that their constitution is about normal.

Dr. Wegner occupies some pages with the discussion of the therapeutic effects of phosphorus on osteomalacia and rickets, but has had no sufficient opportunities to arrive at any definite conclusion. He, however, states, as the result of experiment, that the callus thrown out after fractures, resections, etc., is more dense when phosphorus is given than it is under other circumstances, and that the formation of new osseous tissue is also accelerated.

Theory of Chronic Phosphorus Poisoning.—Dr. Wegner, after discussing the theories of acute phosphorus poisoning briefly, and pointing out the difficulties of the subject, proposes the question: Is it phosphorus or one of its compounds (and if so, which one) in the blood which causes the symptoms of chronic poisoning? When phosphorus is taken into the stomach, he says, it is evident that it must be absorbed, either as phosphorus, phosphuretted hydrogen, or phosphoric acid, and as the second of these compounds would of necessity undergo immediate oxidation as fast as formed or absorbed, the question is narrowed down to the other two. He has found by experiment that

it is impossible to produce by the administration of phosphoric acid in any way or quantity the peculiar changes in the stomach and liver seen in chronic phosphorus poisoning—a chronic gastro-intestinal inflammation may, indeed, be set up; but it is catarrhal, non-specific, entirely distinct from the nutritive changes of phosphorus poisoning; further, the liver is never affected by the acid.

The influence on the bony system is not so clear, because it is possible by the continuous administration of very large doses of phosphoric acid to cause thickening of the bones of growing animals. Yet to do this 800–1000 times the proportional dose of the acid is required; smaller quantities have no effect, and it appears most reasonable to believe that the phosphorus acts as phosphorus simply.

The next question Dr. Wegner approaches is, whether phosphorus acts directly by a specific action on, or irritation of, the bone-forming tissues, or indirectly by offering more phosphates to them. He decides that the action is a direct one, for the following reasons:—

First. The newly-formed tissue of chronic phosphorus poisoning certainly is in its first stages soft, cartilaginous. Second. There is no excess of phosphates in the bone even after the most prolonged use of the drug. Third. When the food is deprived of lime the same new tissue arises, but it remains in the soft cartilaginous condition. Dr. Wegner finally closes his essay with a discussion of the bearing of his discoveries upon the therapeutic use of phosphorus.

THE THERAPEUTIC VALUE OF THE MURIATE OF LIME.

In the *Edinburgh Med. Journal* for July Dr. Begbie has an elaborate memoir upon the therapeutic value of muriate of lime, in which he gives a review of the English literature on the subject as well as his own experience, which he states to have been large. He says, that, as stated long ago by Dr. Beddoes, the salt is of very great value in the chronic diarrhœa of children, associated with feeble appetite, anæmia, enlarged belly, and hectic symptoms. He also adduces much testimony as to its remarkable efficacy in cases of scrofulous taint with enlargement of the cervical glands, confirming this testimony by his own experience. In such cases he has seen the most brilliant cures under its use, after the complete failure of iodine, cod-liver oil, and all the other orthodox remedies. In some cases it requires to be taken for a long time, in some instances even for months, before its beneficial effects are seen; generally, however, the glands begin to soften and lessen in size after a few weeks, and the general symptoms consenta-

neously to improve. The salt has a disagreeable, mawkish taste, to which patients generally soon become accustomed, especially when the drug is taken in milk. Dr. Begbie also affirms that the chloride is of equal value in acquired and hereditary scrofulous adenitis. He states that he has used it with great benefit in *tabes mesenterica*. In Paris he saw it used many years ago by Cazenave with asserted success in lupus. The dose for an adult is from ten to twenty grains three times a day, gradually augmented to thirty grains, unless symptoms of local gastric disturbance are developed. The Doctor is partial to the old solution of the *Edinburgh Pharmacopœia* as a ready means of administering the drug. To young children the commencing dose is from two to six grains. It is best administered in milk, shortly after meals, although it may be given with impunity on an empty stomach.

XYLOL IN SMALL-POX.

Dr. James B. Russell has a paper in the *Glasgow Med. Journal* for May, in which he analyzes and shows the insufficiency of the evidence that xylol has any specific virtue in variola. He also reports a number of cases in which he has used it, and further says:—

"I have used xylol in other cases than those; but not observing any obvious effect, I have not prosecuted its further use. I may remark that the progress of the disease, its complications and its sequelæ, seem to me to be recognizable in those cases exactly as if no xylol had been introduced. We have persistent delirium, pulmonary congestion, erysipelas, pulmonary gangrene, and numerous boils, these latter being rather inconsistent with any antiseptic theory of the action of xylol.

"In the preliminary notice, to which reference was made at the beginning of this paper, it is stated that Dr. Zuelzer has been in the habit of using xylol in *Tic douloureux*. From observations of its effects on myself, I am sure that in doses of min. xx. to min. xl. xylol acts as a peripheral sedative. In about ten minutes after taking the larger dose on an empty stomach, numbness and languor were felt in the limbs, and in fifteen this had increased so that one leg resting on the other, or the hand resting on the thigh, gave but a dull sense of pressure. Locomotion was uncertain and languid; and the intellect was drowsy, but without marked stupidity. This condition disappeared slowly.

"One word as to the administration of xylol. In water it is very acrid. It makes an imperfect emulsion with yolk of egg, and it is

soluble in rather more than its own bulk of spirits of wine, and also in all proportions of olive oil. The spiritous solution was rejected, both because the spirits of wine is itself an active agent, and might have vitiated the results; and also because the olive-oil solution was found to be so eligible. In equal parts it forms a perfect solution, the resulting liquid having none of the viscidity of oil, pouring readily and being quite palatable without dilution. A teaspoonful gives the usual dose of min. xxx.

APOMORPHIN.

In the *Glasgow Medical Journal* for May is a translation of a paper by Dr. Franz Riegel and Dr. Rudolf Boehm on apomorphin, in which a sketch of its history is first given, and then a number of experiments on man detailed.

A one per cent. solution was used. The experimenters found that Merck's specimen acted more slowly and more disagreeably than the English. In summing up the results with the latter they say:—

"First of all, as regards the *dose* administered in man, it varied between .003 and .011 grms. In four cases it was 3 mgrms.; in three, it was 4 mgrms.; in three, it was 5 mgrms.; in one, it was 7 mgrms.; and one, 11 mgrms. But it must be observed, that in all these cases the effect was the same; that in none of them, beyond the emetic effect and the variations of pulse and temperature accompanying the act of vomiting, did further concomitant effects or consequence appear even with the largest doses. As we have convinced ourselves, through frequent repetition of the experiment with different large doses in the same individual, the administration of twice or thrice the quantity of the dose from which an effect has been already proved to follow, produces no more result than that from the smallest efficient dose. It must certainly, therefore, be reckoned not the least important property of apomorphin, that its administration has great scope, and that even large doses may be used with safety.

"As a second important element we must mention the smallness of the active dose of our drug.

"As a third, and most important peculiarity of our drug must be mentioned the possibility of its employment subcutaneously. We may specially remark that we never observed, either in man or animals, any local irritation at the point of injection; neither has the act of injection been accompanied by special pain, apart from the mere manipulation of the needle. We may add that we have ex-

perimented with different strengths of our preparation, but that neither with one per cent. nor with five or ten per cent. solutions has irritation been produced. The part of the body selected is of no importance as regards the ultimate result. The advantage of the administration of emetics thus must be very apparent in the treatment of children, and not unfrequently even in adults, in cases of poisoning, and where there is coma or loss of consciousness, and in many other cases.

"A fourth, and certainly not unimportant property of our drug is to produce its specific action comparatively soon after introduction, and after very short preliminary symptoms, and sometimes even without any.

"The difference in this respect, in comparison with the other emetics, requires no comment. We may here record an observation which we made both on the English preparation and on Merck's, viz.: that while apomorphin preserved in the form of powder seems not to lose its activity in the least, as is evident from the circumstance that after more than a year our English preparation showed striking results, still, once dissolved it seems very soon to decompose and lose its strength. We were able to demonstrate in the solution a daily diminution of activity, though it still, in comparison with other emetics, continued prompt. Further observations will test the accuracy of our remark.

"We must lastly point out a fifth agreeable property of this substance—that, as may be partly explained by the rapidity with which it acts, comparatively very trivial and transient collateral effects occur, especially never unpleasant after-effects such as accompany tartar emetic. In many cases vomiting took place quite rapidly without any previous symptoms, and after one or more acts of emesis the patient felt perfectly well. At most, a few general symptoms for a short time preceded and succeeded the act of vomiting, and the duration of these symptoms was always much shorter than attends any hitherto known emetics. Generally several minutes passed after the introduction of the apomorphin, during which there was no objective or subjective change. Soon there set in headache, giddiness, especially a frequently expressed inclination to yawn, and a variable degree of faintness. In not a few cases vomiting was preceded by the outbreak of perspiration, more or less copious, sometimes over the whole body, at other times confined to the face. Along with this there was frequently drowsiness and a certain amount of apathy. As soon as emesis was over, the symptoms above mentioned always began to disppear. The actual vomiting was preceded, though not in all cases, and only for a short time, with eructations and retching. In a few cases vomit-

ing came on so suddenly and unexpectedly that, without any previous warning, at one bout all the contents of the stomach were expelled. In these cases, generally, the symptoms also following the act were so slight that the patient had scarcely any discomfort immediately after. But always (and this is of much importance in contrast with other emetics), in all cases, the patient was perfectly well again very shortly after vomiting, and only in the later observations, in which a less active preparation was used, were the after-effects somewhat prolonged, though even then, in comparison with other emetics, they were both much shorter and much less severe.

"With reference to the action of apomorphin on the eye we have only negative results to show. In none of our experiments was any obvious alteration of the pupil observed. As regards the pulse, the same effects were not observed in all cases. In many cases the pulse fluctuated within slight limits before emesis, until during the act it became moderately quickened, but, however, shortly after the cessation of vomiting, either immediately or after rapidly sinking below the normal, returned to its former figure. In other cases again a distinct increase in rapidity set in shortly after the injection, but in general, as anxiety, malaise, drowsiness, and perspiration occurred, gave place to a diminishing rate. At the same time there was a decided diminution in the strength and volume of the pulse. With the act of vomiting there again came a considerable acceleration, after which, whether further vomiting followed or not, the pulse either returned to the normal or again presented the above character. Always according to the duration of this stage of depression, the pulse remains for a corresponding length of time distinctly slower, of less volume, and softer than before.

"The respirations generally, if no fortuitous mental influences existed, were at first unchanged, immediately after the injection.

* * * * * *

"We have already noted the valuable property peculiar to apomorphin among emetics, the absence of secondary effects. Our results agree with those of Matthiesen and Wright, and also Siebert. More particularly the intestinal canal, which is often excited by other emetics to sympathetic action, is not affected except in emesis; and we have never observed pain in the stomach, gastric derangements, diarhœa, or any similar symptoms."

In the *Union Pharmaceutique* for June, 1872, is a paper by Dr. Meyer, translated from *Nieuw Tijd. voor Pie. in Nederland*, which contains, however, nothing new, but calls attention to the observation of H. Blaser (*Apothek.-Zeitung*, 1872), that an aqueous solution of

apomorphin changes into a deep emerald color in twelve hours, and becomes unfit for use. Dr. Meyer confirms the superiority of the English apomorphin over the German.

ON THE TREATMENT OF VARIX BY SUBCUTANEOUS INJECTIONS OF ERGOTINE.

BY DR. PAUL VOGT.

Ch. Raushenberg, M.D., translates (*Atlanta Med. Journal*) as follows:—After the observations of Von Langenbeck in relation to the cure of two aneurisms by subcutaneous injections of ergotine (*Berliner klinische Wochenschrift*, 1869, No. 12, p. 117)—followed, first, by a communication of Schneider, made at the meeting of the Society for Scientific Medicine, at Königsberg, on the 25th of May, 1869, on the cure of an aneurism of the femoral artery, and finally by one from Dutoit (in *Von Langenbeck's Archives*, vol. xii.) on the cure of one of the subclavian artery by the same means—had almost beyond a doubt established the effect of the preparations of ergot on the blood-vessels, particularly in the form of subcutaneous injections of ergotine, as they were first used by Drasche, of Vienna, against hæmoptysis (*Centralblatt für medicin. Wissenschaften*, 1868, No. 52), I commenced last summer a series of experiments in relation to the effect of ergotine in other morbid conditions of blood-vessels.

I first tested its effect in a disease in which our surgical remedies, as far as a radical cure is concerned, have been almost entirely powerless, to wit, *in varicose veins in the leg.* As the leading principle which so far has governed the radical treatment of varices—the production of more or less extensive obliteration of the cavity of the diseased vein—by whatever method it may be carried into effect, involves dangers much greater than those resulting from the disease itself, we have generally, by our efforts to use only safe methods of relief, been confined to a mere palliative treatment.

The effect of ergotine in this disease was tested with a view of regulating the circulation, and removing expansion and engorgement of the vessels.

A man sixty years old, who had suffered for years from extensive varicose veins of the right leg, was treated with subcutaneous injections of extract secalis cornut. aqu. 2, 0 (ʒ i.), with spirit vini and glycerine, ana 7, 5 (108½ grs.), in such a manner that principally two localities, where the varices were most largely developed, were used for injections. The outlines of a varix about six centimetres (nearly two inches) long, and as thick as the little finger of the human hand, run-

ning across the tibia, were marked on the surface of the skin by lunar caustic, and about its centre a whole syringe of solution of ergotine (0.12 or 1¾ grs.) was injected under the skin every other day. In the course of eight days the varix had totally disappeared, and after the patient had been walking about six weeks in his usual way, no sign or symptom of the old disease could be seen or felt on the place where it existed before.

Another varix, of the size of a hazel-nut, on the external calf of the leg, was made to disappear, in the same individual, by one single ergotine injection under the skin above it.

At the place where the injections had been made, a hard and rather circumscribed infiltration made its appearance, but showed, notwithstanding the thin and atrophic skin of the rather senile individual, no inclination to inflame or become gangrenous, but disappeared without causing any notable pain or inconvenience.

For the purpose of becoming still better acquainted with the effect of ergotine on the blood-vessels, I caused Dr. Potel to institute two experiments, with the intention of—

1. Testing microscopically the effect of ergotine on the vessels of the mesentery of the frog.

2. Establishing sphygmographically the changes of the pulse produced by ergotine.

These experiments were made under the supervision of Prof. Landois,* and established the fact, microscopically and sphygmographically, that ergotine acts on the muscular coat of the blood-vessels, the arteries as well as the veins (Inaugural Dissertation, Greifswalde, 1871).

After this, numerous patients in the surgical clinic and polyclinic of this city, with varicose veins, were treated by subcutaneous injections of ergotine, in the manner above described, and the astonishingly favorable effect of this treatment, even in the most enormous varicose enlargements, was distinctly confirmed. For an explanation of this effect we must take the following points into consideration:—

1. The above experiments and clinical observations demonstrate that the subcutaneous injections of ergotine cause, primarily, a contraction of the muscular coat of the arteries. By this diminution of the calibre of the arteries, which most prominently takes place in the medium-sized vessels, as they are most richly supplied with smooth muscular fibres, the quantity of the blood which reaches the veins is diminished, but the velocity of its motion increased.

2. The ergotine causes also a contraction of the muscular coat of the

* The author of a late work, "Die Lehre vom Arterien-Pulse" (Teachings on the Arterial Pulse)—full of original investigations and important physiological facts.—TRANSLATOR.

veins; and if in varices of very long standing this faculty of contraction may almost seem to be abolished, it still exists, to more or less extent, in many places along the course of the diseased vessels; and that it is very considerable in varices of not too long duration is demonstrated by the fact that the enormous varices which we frequently see in pregnant women are often, within a few days after delivery, reduced to very common varicose enlargements.

Whether this favorable effect—which, so far, has been clearly established in all cases—will finally prove sufficient for a radical cure, can only be demonstrated by a longer observation and control of the cases treated. The results, however, so far obtained, invite at least further experiment and further application of a remedy which, in all cases, can be used without any danger; and I have already commenced to use it, and partly with favorable results, in other venous diseases—for instance, varicocele, hemorrhoids, and certain forms of angioma.

In order to gain further physiological clues for the therapeutical use of this agent, I endeavored to determine whether the subcutaneous ergotine injections would first and immediately produce contraction of the vessels at the place where they are made, or *whether this effect took place only after absorption, from the centre of vaso-motor action.* The fundamental experiments were the following:

1. Ergotine 0, 12 (1¾ grs.) was subcutaneously injected into the right femur of a frog, and, two hours and a half after, this leg amputated below the knee. Hemorrhage very small, while amputation of the leg of the other side, at the same place and at the same time, shows considerable hemorrhage. The same experiment, repeated twice on other frogs, shows very little difference in the hemorrhage—giving rise to the idea that perhaps the compression caused by the injected fluid occasioned the difference observed in the first experiment.

2. The cervical portion of the sympathetic nerve of a rabbit is divided on both sides as high up as the upper cervical ganglion. After the vascular congestion and increased temperature following this operation, on both sides of the head, is well established, 0, 06 ($\frac{9}{10}$ grs.) ergotine is subcutaneously injected at the base of the right ear. No material difference between the two ears can be noticed within from one-half an hour after the injection up to the next day.

3. After injecting at the base of the right ear of a rabbit 0, 10 (1½ grs.) ergotine, the cervical portion of the sympathetic nerve of the same side, as far as the upper cervical ganglion, is divided. Soon afterwards, a very considerable engorgement of the vessels of that ear takes place; but the ear on the other side, where the sympathetic nerve has also been divided without previous injection of ergotine, shows the same increased vascularity as the ear of the other side.

After all this we must arrive at the following résumé: That ergotine, subcutaneously injected, causes contraction of the muscular coat of the blood-vessels; that this contraction of the smooth muscular fibres is caused by the intermediation of the vaso-motor centres. Whenever the influence of the latter is interrupted, the effect of ergotine is paralyzed. If ergotine affects the vessels at the place where it is injected with any more intensity than on more distant portions of the body, it may be caused by a direct influence on the peripheric extremities of the sympathetic nerve analogous to the local effect of the subcutaneous injections of morphine, which, besides their general effect, seem to produce, also, a local anæsthesia of the peripheric nerves of the locality where the injection is made.—*Berliner klinische Wochenschrift*, March, 1872, No. 10.

TREATMENT OF THORACIC ANEURISM BY GALVANO-PUNCTURE.

Dr. Ciniselli is about publishing a work on the above subject, and has, in advance, printed an abstract in the *Gazette Médicale de Paris*, July 6, 1872. In it he states that he has compiled and studied all the cases on record, some twenty-three in number. These cases are divided into two distinct series, those (nine in all) between 1846 and 1866, and those between 1868 and 1870 (fourteen). The first of these were merely experimentally, and the second were really scientifically treated.

In the first set the disease had advanced beyond all hopeful limits before treatment, yet three of the nine cases were ameliorated.

In July, 1868, a favorable case offered itself to Dr. Ciniselli; it was cured and reported in the *Gazette des Hôpitaux*, 1868, No. 34, and was the first of the second series. In this series seven aneurisms of the cavity of the chest were manifested externally by protrusion of the ribs, pulsation of the intercostal spaces; the other offered a more or less marked tumor posteriorily, with greater or less erosion of the thoracic walls.

Of the purely thoracic aneurisms, three were of the ascending, three of the transverse aorta, or brachio-cephalic trunk. The secondary aneurisms had their origin in primary internal aneurisms, three of the ascending, three of the transverse aorta, and communicated by a large opening with the artery.

The galvano-puncture was practised as in my first case. A Voltaic pile of thirty couples (zinc and copper), disposed in two columns, with saturated solution of salt. The rheophores were so arranged that one

could avoid as much as possible the shock in changing the direction of the current—steel needles, with the two poles successively acting upon them in the well-known manner, to avoid the electro-chemical cauterizations.

The galvano-puncture, so performed, has never given rise to an accident; the shocks have been very moderate; in one case all suffering was avoided by anæsthesia. During the operation the formation of an electrical clot was shown by the change in moving the needles, and by the hardening of the tumor; the extraction of the needles was always difficult, on account of their oxidation, without appreciable effusion of blood.

The operation was shown to be innocent, even in the most dangerous cases, with a very moderate general reaction, and a local reaction readily controllable by the application of ice and lead-water.

In the seven cases in which the aneurism was confined to the cavity of the chest, the amelioration has been prompt and progressive. The relief has, in six of the subjects, now lasted for seventeen months, nine months, eight and a half months, four months, and in two cases three months. The seventh case relapsed and died. The cases of external secondary aneurisms all relapsed and died. At the post-mortems in some of them the electrical clot was still very apparent. It could be distinguished by being central, adherent to the sac at the point where the needles had entered, globose or irregular, and composed of lamellated layers; also by being whitish yellow, composed of fibrine mixed with much albumen, and containing blood in its interstices. Its chemical composition is different from that of ordinary blood.

The electrical apparatus best fitted for this purpose is one which unites sufficient tension with the least possible quantity—a pile composed of a large number of very small plates meets these conditions. A Voltaic apparatus of thirty plates, of ten centimetres of surface, meets the indications best. The needle-points should be about one and a half centimetres apart, and from two to four centimetres within the aneurismal pouch. In order to avoid chemical action it is necessary to alter the two poles at the end of certain periods of time, mostly from four to six minutes. The duration of a treatment varies from thirty to forty-five minutes, according to the number of needles used.

CUTANEOUS ABSORPTION.

M. Bermond, in a communication to the French Academy, arrives at the following conclusions:—

1. Cutaneous absorption is demonstrated by experiment to take place from medicated vapor and water baths.

2. Ordinarily it does not occur at a temperature of 38° C., *i. e.*, one below that of the body.

3. The absorption of iodide of potassium is in proportion to the heat, duration of the bath, and the quantity of iodide of potassium.

4. The elimination of the salt commences after the bath, and generally ceases entirely in twenty-four hours.

5. When ten or twelve baths have been taken, the elimination continues for three or four days after their disuse; if twenty or thirty baths have been taken, it persists for ten or twelve days afterwards.

9. A simple vapor, followed by energetic frictions with soap, facilitates greatly the absorption.

10. The vapor never contains a trace of free iodine, but only iodide of potassium.—*Gazette Médicale de Paris*, July 6, 1872.

Chloral in Puerperal Convulsions.—In the Dublin *Journal of Medical Science* for June, 1872, Dr. McDowell details a case of puerperal convulsions and mania, in which chloral seemed "to act like a charm."

NORMAL PRESENCE OF ALCOHOL IN THE BLOOD.

Under the above caption Dr. H. Ford has a very interesting paper in the *New York Medical Journal* for June. Believing that liver sugar is converted into alcohol in the lungs, he has endeavored to find that substance.

He first made a calculation as to the amount of alcohol generated, supposing his theory to be true, as follows:—

Scharling estimates the carbon given off from the lungs of a man, in twenty-four hours, at 325.31 grammes. Supposing that all of this carbon (which is not strictly true) results from the destruction of hydrocarbon, and that this hydrocarbon is hepatic sugar, 813.26 grammes of this substance would be fermented, producing 415.65 grammes of alcohol, or 6,415 grains. As this quantity represents the entire supply during twenty-four hours, $\frac{6415}{1440} = 4.45$ grains of alcohol would pass through the lungs in one minute; and as by Müller's estimate 76,800 grains of blood is borne through those organs in the same time, we have, by this calculation, $\frac{4.45}{76.800} = 0.5794$ of a grain of alcohol present in the lungs to 10,000 of blood. The two results approximate closely enough for such calculations. So that, while no less than 23.05 oz. (Scharling) to 24.36 oz. (Liebig) of glucose should be poured into the circulation within twenty-four hours, representing *about thirteen ounces* (av.) *of alcohol*, a quantity amply capable of subserving most important functions, whatever these may be, it is impossible that the blood of the vena cava or the lungs should *contain* more than the *half*

of one part of alcohol in 10,000 parts, even if no particle of alcohol so formed be oxidized.

Impressed with the difficulty of finding such minute amounts, Dr. Ford first made some preliminary experiments, and found that a few drops of alcohol could be recovered from a quart of distilled water, as could also one part of alcohol from 3 or 4,000 parts of blood, even several days after its addition.

He next experimentally determined, that during the incipient putrefaction of blood the disappearance of glucose is due, in part at least, to its conversion into alcohol and carbonic acid, and then, by similar experiments, proved that the same changes occur in decomposing liver and lungs, from both of which he succeeded in recovering alcohol.

Commenting on these facts, Dr. Ford writes as follows:—

These experiments had been instituted as a preparation for the important question, shortly to be proposed, concerning the normal presence of alcohol in the organs and blood of animals. The process by which, after death, organic matter advances to destruction is similar to that by which, during life, its constituents are conducted through their natural metamorphoses. In both cases nitrogenous colloids are eventually resolved into crystalloids. The first step is always the absorption of oxygen. If glucose be in contact with a nitrogenous colloid undergoing oxidation, as a preliminary to further change, its elements group themselves into *alcohol* and *carbonic acid.* I have enjoyed quite unusual opportunities for studying the common processes of distillation, and am convinced that Liebig's views are essentially correct. The formation of alcohol in the fermenting-tun begins with the oxidation of gluten, which consists mainly of *vegetable fibrine*, advances with it, *pari passu*, and ceases with it. If animal fibrine be oxidized in the lungs, it must act similarly, and with equal power; indeed, be far more effective, inasmuch as hepatic sugar is greatly more fermentescible than "grape-sugar." Adopting Virchow's views respecting its tissual origin, *fibrine* is emptied by the lymphatics into the venous system, and borne into the lung-capillaries, where it absorbs oxygen with great avidity. It is in the act of decay, or Liebig's "*eremacausis.*" If hepatic sugar be in contact with it at this moment, it must surely be resolved into alcohol and carbonic acid. This alcoholic fermentation must, therefore, be a constant phenomenon, varying directly in rapidity and completeness as the amount of fibrine present and the intensity of oxidation.

After oxidation, if fibrine be left to itself, out of the body, it putrefies very soon. Within the organism it is likewise broken up into simpler bodies, most probably in the liver; for fibrine disappears in this organ—which it reaches by two channels—with a simultaneous

formation of glycogen and fat, biliary acids, and probably uric acid.

Dr. Ford next attempted to, and did obtain alcohol by the repeated distillation of freshly-drawn blood. He gives a long and elaborate account of his methods and precautions, which we omit, merely stating that they appear to have been very skilful and satisfactory both in conception and execution.

The tests which he relied on were as follows:—

1. *Chromic Acid dissolved in Sulphuric Acid.*—By adding 0.25 grammes of crystallized bichromate of potassa to 100 grammes of concentrated and chemically pure sulphuric acid, the salt is decomposed, chromic acid liberated, and a rich brownish-yellow liquid obtained. When to any fluid, containing the feeblest trace of alcohol, an equal bulk of this reagent is added, much heat is evolved, and, by deoxidation of the chromic acid, sesquioxide of chrome is produced, imparting to the fluid an emerald-green hue. This is an exceedingly delicate and reliable test; nothing similar occurs with other volatile fluids obtained from fermented or organic matters; sugar, dextrine, and gum, uric acid, urea, and albumen equally effect this reaction, but must be obviously absent in distilled fluids.

2. *Inflammation of the Vapor of Alcohol in a Test-tube upon Ebullition of the Final Distillate.*—This most striking and important test I have found applicable when not less than two per cent. of alcohol exists in an aqueous fluid; below this percentage the alcoholic vapor is too much diluted with steam to burn even at the first moments of ebullition. Some care is requisite in the use of this test. The quantity of liquid should be about one-tenth of the capacity of the test-tube; the flame over which the tube is held should be very moderate and steady, and should give but little light; the room should be darkened; a wax-taper ready lighted should be held just above the upper edge of the mouth of the tube; the entire length of the test-tube should be heated before the liquid is made to boil, and the tube held in an oblique position by a bit of bent wire, that it may be closely watched, as the least discomposure may prevent our observing the inflammation of the vapor, which is sometimes only momentary. When all is properly done, if alcohol is present in more than one and a half or two per cent., a flash of flame is seen to descend into the tube at the moment of ebullition, or a little after it; and if alcohol be present in greater quantity the vapor continues, for a longer or shorter time, to burn at the mouth of the tube, during the continued boiling, with a characteristic flame. No other substance met with in the distillate of animal matters is capable of inflammation in this way. The *primary distillate*, and *all successive ones*, until the last portions are

reached, constantly refuse to burn as above described, no matter how abundant the empyreumatic substances may be. Some organic acids, as formic and acetic, are inflammable in the state of vapor, but only when pure or nearly so; the greater part, however, of the final distillate of these processes is water, and *acids are not* present, as it is neutral, or *must be made so*, previously to weighing or testing.

3. *The Optical Appearance within the Conducting-Tubes when the Distillate just begins to boil.*—Alcohol comes over in greatest strength in the first moments of distillation, and, if present, may always be seen to play in a mobile manner just in advance of the watery dew-drops, as both progress rapidly along the interior of the conducting-tube. To observe this peculiar play of the successively condensing and vaporizing alcohol, it is essential that the drops of water, previously deposited from the humid air within the interior of the tube, should have been dissipated by a gentle heat from the flame of a lamp; the conducting-tube being allowed to cool again before ebullition. This appearance is of course only to be observed between the balloon and the condenser. It is a trustworthy guide for very minute quantities of alcohol, and should be studied in the distillation of dilute mixtures of alcohol and water. If carefully looked for and not observed, alcohol is hardly present; especially as the terminal distillations of a series are approached. Other volatile substances likewise condense at the first bend of the conducting-tube, but their "play" is entirely different, and they invariably *precede* the appearance due to alcohol; they are, moreover, often milky, or yellowish, when direct heat has been applied to the organic matter experimented on. It is hardly necessary to remark that the purification of the final distillate *is not complete*, so long as this ante-alcoholic "play" is observable.

In order to arrest any possible oxidation of alcohol into acetic acid, in some of his experiments Dr. Ford added sulphuretted hydrogen to the blood as it was drawn.

The results of ten experiments are shown in the following table:—

No.	Weight of Blood.	Interval from Death to 212°.	Temperature when distilled.	Weight of First Distillation.	Weight of Final Distillate.	Weight of Alcohol obtained.	Weight of Alcohol for 10,000 parts of Blood.	With or without H. S.
15	6970	60 m.	....	....	.....	0.0650	0.0932	without.
16	9734	56	101°	1602	0.8416	0.0198	0.0203	without.
17	9137	70	100.3°	1636	1.6218	0.0605	0.0662	with.
18	9236	77	99.5	1623	3.6130	0.0444	0.0489	with.
19	8988	60	99	1555	2.6092	0.1357	0.1509	with.
20	8854	60	98	1555	1.7320	0.0760	0.0858	with.
21	9423	45	96	1560	1.8722	0.0708	0.0751	without.
22	9112	61	98	1550	0.9552	0.0350	0.0384	without.
23	27330	48	98	14050	10.6883	0.2928	0.1071	with.
24	36300	51	99	17600	14.0606	0.5652	0.1556	with.

In conclusion, Dr. Ford sums up as follows:—

It has been premised that, even if oxidation were in complete abeyance, not more than *half a part* of alcohol could exist, at any given moment, in ten thousand of pulmonary blood. This statement was based upon the result of a double calculation, whose elements were so different that their common evaluation must be accepted as something *very near the truth.* These two figures I now subjoin, with those exhibiting the results practically obtained in the experiments detailed, all for 10,000 parts, as follows:—

Alcohol in the capillary blood of the lungs:		
	∫ calculation based on "*carbon ingested*"	0.5403
	(" " "*carbon exhaled*"	0.5794
"	putrescent lung-tissue (mean of ex. 8, 9, and 11)	0.3819
"	fresh " (" " 12, 13, and 14)	0.3076
"	putrescent thoracic blood (mean of ex. 1, 2, 3, 4, and 5)	0 7625
"	fresh " (mean of table)	0.0841
"	putrescent liver-tissue (ex. 6)	4.3138
"	fresh " (mean of ex. 25, 26, and 27)	0.0190

An examination of the above figures will show:—

1. That from putrescent liver-tissue the largest yield was obtained. Much of the alcohol in this case must have been lost by acetification, and partly, no doubt, by transformation into lactic acid and other products.

2. That the least quantity obtained was from fresh liver-tissue. It would appear that the fermentation of hepatic sugar merely *begins* in the hepatic capillaries.

3. That a far greater quantity of alcohol was obtained from blood in a state of incipient putrefaction than from fresh blood—about nine times as much. Under the circumstances of the slaughtering, blood from the inferior cava, laden with sugar, must become mingled with that from the lungs and other great vessels; it may even escape upward through the auricle and superior cava: mixed thoracic blood must, therefore, contain a large quantity of alcohol after *putrefaction* has advanced sufficiently far to cause the fermentation of all its original sugar. On the other hand, as *fresh thoracic blood* cannot be supposed to have traversed the lungs, it must only contain a small proportion of alcohol, for its sugar has *not been yet fermented;* it must likewise have been largely diluted with aortic blood, which, in the *fasting* state especially, contains no sugar, nor alcohol, probably. As the thoracic blood employed in ten of these experiments should be composed of blood from many different vessels, which are divided at random by the knife, it must contain very variable quantities of sugar and alcohol, always, of course, however, *less* than the blood of the inferior cava.

4. That the greatest amount of alcohol obtained from any of the re-

cent substances was recovered from fresh lung-tissue. Lung-tissue newly extracted from the body retains about half its weight of blood, the number indicating alcohol should, therefore, be *doubled;* this would show that about as much alcohol had been actually procured as calculation warrants us to suppose present. Contrary to what we have just stated with regard to fresh and putrescent blood, we find that *fresh lung-tissue* contains nearly as much alcohol as *putrescent lung-tissue.* The figures show that only about *a fifth* of the sugar originally present remained unfermented after seventy-three minutes, when the fresh tissue was distilled; while no greater increase than *this fifth* took place in the seventy-seven hours during which similar tissues were submitted to putrefaction. Fermentation seems thus to be more active in the lungs *immediately after death,* and probably at its *highest term* during life. This deduction receives tangible support from the fact just now stated, viz., that in *fresh thoracic blood,* which the test by decomposition proves to be rich in sugar, *very little alcohol* is to be found; such blood has mostly been derived from the great vessels, and has not yet passed through the lung capillaries; its sugar has not consequently been fermented. Other considerations, in too great variety to mention here, would lead us to conclude that the capillary system in the lungs is the proper seat of the alcoholic fermentation. As this must vary directly as the oxidation of its ferment (fibrine), if the aëration of the blood be impeded or arrested by the action of toxic or medicinal agents, such as woorara, the ethers, chloroform, etc., or by injury to the M. Flourens's "*nodus vitalis,*" which paralyzes the pulmonary vaso-motor nerves, and induces pulmonic congestion, sugar becomes so abundant in the circulation as to pass into the urine—the animal becomes glycosuric. Alvaro Reynose has published a very interesting little pamphlet on this point ("*Mémoire sur la Présence du Sucre dans les Urines,*" Paris, 1853), in which he seems disposed to accept M. Mialhe's well-known hypothesis of saccharine oxidation in the lungs, in virtue of the alkalinity of the blood. The hypothesis of the alcoholic fermentation of hepatic glucose in the pulmonary capillaries is quite adequate to explain the above phenomena: an animal becomes glycosuric in cases like those alluded to, *not* because glucose cannot be oxidized in the lungs for want of oxygen, but because the alcoholic fermentation is slackened or suspended in consequence of the failure or deficiency of the oxidation of its proper ferment; the constant oxidation of its ferment being a law of this fermentation, as already explained.

5. That if, as before, we consider the lung-tissue operated on as containing one-half its weight of capillary blood, by *doubling* the alcoholic ratio, we have, for the *capillary blood of putrescent lung-tissue* (where we suppose all the sugar to have been converted) the figure 0.7638 =

(0.3819 × 2), which is nearly exactly equal to the mean product of putrescent thoracic blood, all of whose sugar has likewise been converted.

The general accordance of the results above set forth with theoretical anticipations, and their consistency with each other, strongly tend to substantiate the truth of the hypothesis under which the whole experimental series was conducted, as well as to establish the *high degree of accuracy of the methods employed.*

ACTION OF CHLOROFORM.

In the New York *Medical Journal* for June, Dr. Robert Amory states that from a number of unpublished experiments he has arrived at the following conclusions:—

1. The elective action of chloroform for the cerebro-spinal system, upheld by MM. Lallemand, Perrin, and Duroy, by Dr. Anstie, and by others, is not yet proved. The experiments undertaken to disprove this theory, by Gosselin, by Snow, and by Richardson, seem to show, that if the brain of an animal is moistened with chloroform no anæsthesia follows.

2. The injection of chloroform into arteries or veins of any portion of the body does not cause anæsthesia, unless a sufficient quantity is injected to produce coma or death; the carotid, the femoral, and the branchial arteries were employed in this method of experimentation. No sleep followed, unless coma and death supervened. It was observed that the chloroform was absorbed by the tissues and eliminated by the lungs.

3. Blood was directly transfused from one dog, who was in a complete state of anæsthesia from the inhalation of chloroform, to another who had not inhaled chloroform. Five minutes from the commencement of the transfusion, chloroform was exhaled from the lungs of the second dog, though it could not be perceived before. The transfusion was continued without interruption for from fifteen to twenty minutes, beyond which time clots were formed in the tube, so as to interfere with the continuation of the experiment. This experiment was repeated several times with the same result. There was not the slightest appearance of abolition of pain, nor any attempt to sleep, on the part of the second dog. The transfusions were conducted from femoral to femoral artery, or from carotid to carotid.

4. Unless the blood is surcharged with chloroform, the vapor of which may most easily be absorbed in the lung-tissue, no sleep or anæsthesia will follow the administration of chloroform. I am well

aware that there are some cases in which large doses of chloroform have been swallowed, followed by a comatose condition of the patient; the effects in these cases were not always anæsthetic nor hypnotic, but were in a great measure due to a probable congestion in the nervous centres.

5. The physiological action of chloroform is due to the interference with the process of oxidation of tissue, produced by altering the physical condition of the blood-corpuscles, and rendering them incapable of carrying sufficient oxygen through the tissues.

UREDO MAIDIS IN PSORIASIS.

Prof. Gambrini reports, *Rivista Clinica di Bologna* for March, 1872, a case of psoriasis treated with Indian corn fungus (Uredo Maidis?). All other means had been exhausted in the case. The treatment extended over a period of three months. It began by the administration of six grammes of the tincture in sixty grammes of distilled water, to be taken in two or three doses. The number of grammes administered daily was increased gradually up to eighty. An ointment made of thirty grammes of the tincture to sixty grammes of hog's lard was also used as an application to the affected parts. The following is a *résumé* of the phenomena which accompanied the internal use of the medicine. From the first the patient experienced frequent yawning and eructations. The appetite stood at the normal degree for some days; afterwards it went on gradually increasing. A feeling of heat was experienced in the soles of the feet, and also on the backs of the hands. The urine was colored but did not produce smarting. The patient had a horror of baths generally, but delighted to put her feet and hands in water. She could not bear the weight of her usual bed-clothes. She did not experience any diarrhœa or costiveness. The muscular force at first decreased, but afterwards augmented. The patient became more joyful than her wont. She was naturally of a melancholic temperament. There was no perceptible change in the pulse. When it was found necessary to suspend the employment of the remedy, owing to the patient's disgust at it, it was discovered that the *psoriasis* was not so generally spread over the body; that it was limited to the elbows, knees, along the tibiæ, and very few places on the thighs and arm. The scales, which were at first large and numerous, were reduced to almost nothing, and the *pruritus* had almost disappeared. If the use of the remedy could have been continued there is a probability that the disease might have been entirely conquered; as it was, the result was manifestly favorable. In a second case equally favorable results were obtained.—*Med. and Surgical Reporter.*

RESEARCHES UPON THE PROPERTIES OF THE ACTIVE PRINCIPLES OF OPIUM.

M. Rabuteau read a paper upon the above subject before the French Academy April 22; an abstract of which is contained in *Revue de Thérap. Med.-Chir.*, June 15, 1872. He said that Claude-Bernard had shown by his experiments that the chief active principles of opium act differently upon animals. Only three of them, narceine, morphine, and codeine are soporific, and that these in large doses are toxic in diverse degree, and that they all induce convulsions except narceine.

My experiments, some one hundred and fifty in number, have been made upon healthy or sick men, dogs, rabbits, and frogs. I have studied not only the six principal alkaloids of opium, but also meconia and meconic acid, and have administered both hypodermically and by the stomach.

Thebaine.—According to Claude-Bernard this is the most poisonous to animals of all these alkaloids. This is true, but does not apply to man, who can take without danger ten to fifteen centigrammes of muriate of thebaine. I have found that this substance, injected subcutaneously in neuralgia, acted as an anæsthetic like morphia. I have also found that it is wanting in the power of checking intestinal secretion, and that it is not soporific in man.

Papaverin.—This substance is much less active than thebaine; no symptoms are induced by fifteen centigrammes of its muriate administered hypodermically to the rabbit, twenty-five to the dog. On man it is equally inert, and does not act upon the intestinal secretions, but is slightly anæsthetic.

Narcotina.—Following Bernard, narcotina is the least poisonous of the bases in its action on dogs. It is the same in man, as I have taken at a dose forty-three centigrammes of its muriate without effect. It does not check intestinal secretion, nor is it soporific, either in man or animals. It is not, however, absolutely inert, for it causes in very large doses (three centigrammes) slight convulsions in the frog.

Codeine.—This drug is more dangerous than morphia, and less so than thebaine to the animal. It is otherwise in man. In doses of five to ten centigrammes it produces heaviness in the head and weakness of the limbs. It does not arrest intestinal secretion, and is very slightly analgesic or soporific in man.

Narceine.—This is the most soporific of the opium alkaloids to the animal. It is necessary, however, to inject under the skin of a moderate-sized dog five centigrammes to cause deep sleep. It is much less soporific than morphia in man. But in ten to twenty centigramme doses it causes a calm sleep, not so profound and more natural than that

of morphia. Lastly, this precious substance is largely anæsthetic. It diminishes the flow of urine, has much less action on the intestinal secretion than morphia, but as it does not disturb digestion, is useful in the diarrhœa of phthisis.

Morphine.—This is the most active of the alkaloids as regards man, but, according to Cl.-Bernard, the fourth in rank as regards animals.

Meconine and Meconic Acid.—I have shown that meconic acid is inert even in large doses. I have injected fifty centigrammes into the blood of a dog, and have taken one to three grammes of the bimeconates of soda and potash without producing any symptoms. The reaction of the perchloride of iron and meconic acid could always be developed in the urine, which was neutral. Meconine is equally inactive.

The alkaloids of opium might be classed as follows, in order, accord- to their effects on man:—

Soporifics.—Morphine, narceine, codeine.

Toxics.—Morphine, codeine, thebaine, papaverine, narceine, narcotine.

Analgesics.—Narceine, morphine, thebaine, papaverine, codeine.

Anexosmotics.—Morphine, narceine.

Combined Action of Alkaloids of Opium and Chloroform or Bromoform.—It is known that the combined action of morphine and chloroform is analgesic without of necessity sleep being induced.

A dog which had received, under the skin, five centigrammes of muriate of narceine, and then been put to sleep with chloroform, felt nothing after he awoke. Pinching, sticking, or even treading on his feet caused no indications of pain, and yet he ran about the laboratory. This curious condition lasted for many hours, during which the sensitive nervous system was, as it were, abolished. I have seen the same results in using bromoform or chloral in the same way, and the other alkaloids of opium, except narcotina, in diverse degree.

At the séance of the French Academy, May 13, M. Bouchert read a paper "On the opium alkaloids in regard to their action on children and adults." His conclusions were:—

First—That the alkaloids of opium may be divided in two groups, those which are soporific, and those which are inert.

Second—The alkaloids of the first class differ in activity, and in as large a dose as can be safely administered have no convulsant action, but are toxic when taken in sufficient quantity.

Third—Morphia, with its salts, is the most active of all the opium alkaloids.

Fourth—Codeia comes next to morphia as a soporific and anæsthetic, but it only is one-third as strong as the last alkaloid.

Fifth—Narceine comes next to codeia, but may be taken in large doses without much effect.

Sixth—Papaverine has no effect in doses of one gramme by the stomach, or ten centigrammes hypodermically.

Seventh—Neither narcotine, nor thebaine produces any symptoms in doses of fifty centigrammes.

Eighth—Meconine causes no appreciable effect in doses of thirty to fifty centigrammes.

Ninth—Opianic acid is inert.

Tenth—Morphia and codeia are the only opium alkaloids of therapeutic value.

TREATMENT OF SPERMATORRHŒA.

The occasional introduction of a catheter as large as the urethra will take, is often of the greatest service; it should be passed into the bladder and allowed to remain for five or ten minutes, according to the tolerance of the patient; its mechanical pressure helps to unload the congested capillaries and small vessels of the urethra; its contact deadens and destroys the extreme sensibility of the urethral nerves, and renders them less susceptible to the influence of slight excitants; whilst, by stimulating the muscles, it provokes their contraction, and so renders material assistance in emptying the larger veins. A silver catheter is the best instrument for the purpose, as it exerts firmer pressure than an elastic bougie; and, as the urine can be drawn off through it, the patient will not require to micturate for several hours, which is a point of some importance, as the urethra is often very tender after the passage of an instrument for the first few times. The frequency with which it should be employed depends upon the amount of discomfort its presence occasions; and, if the pain be great, it should not be left in more than a few seconds, lest rigors, swelled testicle, etc., be occasioned. Sometimes the urethra is *extremely* sensitive, and much pain attends the use of the catheter; but this is an additional reason for persisting with it, though a smaller one may be employed at first, so as to cause less pain. I have sometimes found that smearing the catheter with blue or calomel ointment, or with half a grain to a grain of nitrate of silver rubbed down in an ounce of lard, to be of use in obstinate cases; but I prefer the blue ointment to anything I have yet tried. Some camphor, extract of opium, belladonna, etc., may be combined with these ointments, if thought desirable. Care should be taken that these applications do not reach much beyond the curve of the instrument, and it should be thoroughly oiled before using it. The

oversecretion of mucus is always checked by the use of the catheter, whether armed with ointment or not.

Cold bathing, cold douches, etc., should not be employed on going to bed. The ordinary bath in the morning does good; but cold applications at night should be forbidden, as the reaction which follows them will increase the local circulation, and so cause congestion and erection of the penis, and thus increase the probability of emissions.

Not only must the position assumed in sleep be attended to, but undue warmth in bed avoided, whether by using very soft beds or too large an amount of clothing. The bowels should be carefully regulated, to prevent any accumulation within the rectum; and the urine examined from time to time, so as to detect an excess of uric acid, the presence of oxalates, etc., which may render its passage irritating to the hypersensitive urethra. Overdistention of the bladder must, at all times, be guarded against, and the patient warned to pass urine on waking in the morning, lest he doze off again with a full bladder, which is one of the most certain provocations of erection and emissions.

Before commencing to treat this affection constitutionally, it is generally necessary to allay the digestive disturbances, which are so common and often so severe, by giving such remedies as may be applicable to the condition of the patient either with or without the more special medicines. By neglecting to do so, we may not only add to the dyspeptic troubles and obtain no benefit from the drugs given, but a valuable medicine may do harm and be brought into disrepute, in consequence of its being administered at a time when the stomach cannot tolerate it.

Internally, I have found astringents of more use in this disorder than tonics; or they may be combined. Gallic acid, the dilute mineral acids, especially the sulphuric, may be given. Tincture of matico will often be of service, and more so, in my experience, than any other plant rich in tannin, as it appears to act upon the genito-urinary tract rather than upon the bowels, as is often the case with the others.

Ergot is one of the most valuable remedies for this affection, and the liquid extracts of the *Pharmacopœia* is a very efficient and convenient form for giving it; whilst the dilute sulphuric acid can be added, if thought advisable.

When the urethra is very sensitive, and the passage of urine painful, small doses of copaiba are often most comforting; or the other oleoresins may be tried if it disagree; but none of them, in my opinion, is equal in value to copaiba when it can be borne.

I am not disposed to regard strychnine in these cases with very great favor; when there is much irritability of the nerves, I believe it often

adds to this; but when this is subsiding it may be of use as a tonic; so may quinine or iron, but in no other way. I have never given the tincture of iron in the enormous doses (from one to two drachms three times daily) recommended by some, and so I cannot speak personally of its value in such large quantity.

Cantharides, phosphorus (except the dilute phosphoric acid), and the so-called aphrodisiacs, do harm by acting as stimulants to the nervous system generally, and therefore to the local nerves. Cantharides, also, by its action upon the bladder is, especially when given in large doses, a very injurious drug in these cases. For the same reason I disapprove of local blistering; while the sore left by the blister acts, moreover, as a source of irritation, and adds to the liability of emissions.

Belladonna, in my hands, has proved to be an uncertain remedy; in some cases it has appeared to do good by allaying irritation, whilst in others there were no beneficial results from it. The dryness of the throat, disturbance of vision and diarrhœa, which are often caused by it, constitute an objection to its employment in full doses, and without them its value is very questionable.[1]

Camphor is a most useful drug; three or four grains made up into two pills, with half a grain or a grain of opium, and one or two of aloes, have more frequently allayed irritability and prevented emissions than anything I have yet tried. Opium alone does not succeed as well, and a large dose is necessary, so that the untoward symptoms sometimes produced by it are more likely to be incurred.

I have tried chloral in a few cases, and with very great advantage; in doses of fifteen or twenty grains at bed-time it has answered its purpose admirably.

Bromide of potassium, in thirty or forty grain doses, will sometimes be of service; but it seems to me a less certain remedy than chloral, which I am disposed to regard as one of the valuable agents we possess for these cases, though as yet my experience of it is limited.

Suppositories vary much in their action, whatever drugs they may contain. Occasionally they answer well, but often they do not lessen, and I am not sure they do not sometimes increase, the irritability of the parts.

Galvanism I have not employed myself; but in the few instances where I have known of its being tried by others, it has seemed to me to do more harm than good, by adding to the nervous irritation.

Lastly, as to cauterization by the *porte-caustique*, I need scarcely say that I am strongly opposed to this method of treatment; for, if my view of this disorder be correct, this instrument can relieve it in no other way than as the passage of the catheter does. I do not believe that ulceration or other morbid conditions of the ejaculatory ducts are the

causes of seminal losses. We have no evidence that these pathological conditions exist, except, it may be, in very rare instances; and if so, the application of nitrate of silver to the prostatic mucous membrane in every case of nocturnal emission must be unnecessary; and in spite of its alleged harmlessness, I consider it to be a dangerous treatment. I have known two persons die from the effects of the *porte-caustique*, and I have seen others suffer severely from its employment. This may not be the usual result; but I do say that the application of nitrate of silver to the urethra, whether in stick or in strong solution, is at least a very sharp remedy, and will often produce violent inflammation, and sometimes lay the foundation of a stricture or of a chronic irritation of the bladder.

If, then, caustic be applied on an incorrect surmise as to the condition of, and its effects upon, the prostatic mucous membrane and ejaculatory ducts, it is not only an unnecessary, but, in my opinion, an unsafe method of treatment.—*Gascoyne—British Med. Journal.*

CHLORAL.

In the *New York Med. Journal* of June, 1872, is a very able paper by Dr. Robt. Amory, of Boston, which goes far to establish the fact, that chloral acts as chloral, not as chloroform in the system.

He first details a number of carefully conducted experiments, and then comments on them as follows:—

From the above experiments it will be seen that it is not possible to obtain decomposition of chloral into chloroform when the former is mixed with warm, fresh blood, and it is hardly probable that this decomposition occurs in the organism. The decomposition does not occur if the solution of chloral is separated from the blood by a membranous substance such as a sheep's bladder. If, on the contrary, the blood is made strongly alkaline by the addition of caustic soda, the decomposition suggested, but never proved, so far as the author of this article can determine, by Liebreich, Richardson, and others, does take place.

Dr. Amory's next set of experiments are directed to disproving the presence of chloroform in the blood of animals poisoned with chloral hydrate. In these he succeeded in obtaining chloral from the blood and from the air exhaled from the lungs of such animals, but failed to find a trace of chloroform.

The next experiments proved that the blood of an animal poisoned by chloral does not show the presence of chloroform; while that of an animal poisoned by chloroform does show very distinctly the presence of chloroform.

The next step was to disprove the elimination of chloroform from animals poisoned by chloral. The result was in all cases negative, but if chloroform was at any time administered alone or with the chloral, it could be very shortly found in the breath.

The experimental conclusions of this paper are certainly in accord with every-day clinical teaching, that chloral does not act like chloroform, and that the doses of the two substances are not proportionately the same.

HYDRATE OF CHLORAL IN TRAUMATIC TETANUS.

Dr. Jos. R. Beck reports (*St. Louis Med. and Surg. Jour.*, June 18th, 1872), a successful case of traumatic tetanus treated by chloral hydrate. He discusses at some length the evidence so far adduced in favor of the drug, and gives the following table as a summary.

NO.	REPORTED BY	MODE OF TREATMENT.	Whole No.	Died.	Recovered.
1	W. B. Cluness	Chloral alone	1		1
2	M. Verneuil	Chloral alone	1		1
3 & 4	MM. Dubreuil, Lavaux, and Onimus	Chloral and continuous current	2		2
5	Dr. Dufour	Chloral alone	1		1
6	M. Guyon	Chloral alone	1	1	
7	M. La Fort	Chloral alone	1	1	
8	Mr. Tay	Chloral alone	1	1	
9	E. R. Denton	Chloral, belladonna, and potas. bromid	1		1
10	Thos. G. Duncan	Chloral and Calabar bean	1		1
11	Preston Peter	Chloral and Calabar bean	1	1	
12	John W. Ogle	Chloral, belladonna, and ice to spine	1		1
13	Mr. Croft	Chloral alone	1		1
14	Mr. Paget	Chloral alone	1	1	
15	J. Suydam Knox	Chloral alone	1		1
16 to 22	C. Macnamara	Chloral alone	7	6	1
23 & 24	M. Garnies	Chloral alone	2		2
25 to 34	Dr. Widerhofer	Chloral alone	10	4	6
35	F. Auchenthaler	Chloral alone	1		1
36	My own case	Chloral alone	1		1
TOTALS.			36	15	21

Chloral in Traumatic Tetanus.—Dr. Lavo relates (*Annali Universali di Med.*, Feb.) three cases of severe traumatic tetanus which

were successfully treated by means of chloral aided by the employment of the cold bath. The quantity of chloral used during the course of the first case amounted to 240 grammes, with twenty-five baths; in the second to 147 grammes, with fifteen baths; and in the third to 140 grammes, with eleven baths.—*Med. Times and Gaz.*, March 30, 1872.

BROMAL HYDRATE.

In the *Journ. de Bruxelles*, April, 1871, Berti and Namias arrive at the following conclusions as the results of an experimental study of Bromal hydrate.

First—Even in small doses, administered in weak solution, it causes burning in the throat, pyrosis, vomiting, and diarrhœa.

Second—In emulsion (1 : 300) it is most endurable, but yet after a time, if repeated, produces vomiting and purging.

Third—Even in relatively large doses it does not produce sleep or quietude. In epilepsy it is of but very little use.

Fourth—Subcutaneous injections cause abscesses and exert no perceptible influence on the nervous system.

Fifth—Rubbed up with a fat and applied to the skin it produces an erythema which is accompanied by a deep inflammation of the cellular tissue.

Sixth—As a caustic it has no advantages over those in common use.

Seventh—Toxic doses produce stupor, paresis of sensation and motion, and rapid or gradual cessation of respiratory movements.—*Schmidt's Jahrbücher*, April 18th, 1872.

MONOBROMATE OF CAMPHOR IN DELIRIUM TREMENS.

Dr. Allan McLean Hamilton, after detailing various treatments he had resorted to to overcome obstinate wakefulness in a case of delirium tremens, says:—

℞. Camphoræ monobromat., ʒ i.; confectio rosæ, q. s. M. ft. massa and divide in pil. No. xij. One pill was given at 12 o'clock, and within a half-hour the patient fell asleep, and slept soundly till the next afternoon, when he awoke refreshed, and drank some beef-tea and milk. At 12 o'clock the same night he took another pill, and slept till 3 o'clock A.M., when another was administered. From this medicine he obtained regular sleep, and awoke always bright and refreshed. No bad effects followed, even when he took ten grains. His appetite is restored, and his nervous system seems to have experienced

a complete rest and invigoration. I have tried this remedy in chordee, and am convinced it excels any combination of camphor and opium, or any of the usual medicines administered in this complication. The high price will prevent it from being used as freely as some other medicines, as the chemists who manufacture it declare that the combination of the equivalents, camphor and bromide, in nearly every instance is attended by spontaneous ignition.—*New York Med. Journ.*, July, 1872.

Brominated Camphor.—Prof. Deneffe, of Ghent, says (*Presse Méd. Belge*) that he has for more than two years used a combination of camphor and bromine, to which he calls attention. It is known that bromine and camphor unite at ordinary temperatures, but the product is decomposed by exposure. This compound Prof. Swarts, of Ghent, has shown, when heated in a closed vessel, is resolved into hydrobromic acid and a crystalline monobromized camphor, *i. e.*, camphor with one atom of hydrogen replaced by bromine. Its fusing point is 76° C., and its boiling point 274° C.

Prof. Deneffe has prescribed it in the form of pills, seventy grains in thirty pills, of which he gives one every four hours till twenty have been taken; the dose afterwards increased. He finds it an excellent sedative to the nervous system, and has used it with much success in delirium tremens.—*Birmingham Med. Rev.*, April, 1872.

Chloral-Hydrate in Spasmus Glottidis.—[*Jahrbuch für Kinderkrankheiten*, 4. II., 1871.]—Dr. Rehn treated a threatening case of spasm of the glottis, in which the attacks were very severe and frequent, with chloral-hydrate. The attacks were perceptibly lessened and finally quieted. The child thus treated was seven months old. The medicine was well borne, and produced no disturbances of digestion.

Swinging in Phthisis.—The effect of swinging seems to have been observed long ago. George F. Elliot, M. D., states that, in the year 1785, one Dr. Smith, F.R.S., tried the effect of swinging on fourteen consumptive patients, at the Middlesex Hospital. It was practised twice a day, for half an hour at a time. On two of the patients it seemed to have but little effect; in the remainder the pulse fell from eight to fifteen beats per minute. His conclusion is, that "the motion of swinging has often a very sensible and immediate operation on the heart and lungs, as it reduces the frequency of the pulse, lessens febrile heat, suspends or prevents coughing, and promotes expectoration."—*New York Medical.*

ON THE TREATMENT OF ASTHMA.

Mr. George Gaskoin, Surgeon to the British Hospital for Disease of the Skin, says in the *British Medical Journal*:—

In the summer of 1870 I was summoned to a lady suffering from an acute asthma, to frequent attacks of which she was subject. Nothing had been omitted in her previous treatment, which was simply palliative. She was recognized as constitutionally asthmatic, and little hope was entertained of permanent amendment. The asthma first occurred on the subsidence of nervous symptoms a few years previous. It had not, as far as I am aware, any organic basis. There was observable on the legs an eczematous eruption. I directed that the chloroform liniment of the *British Pharmacopœia* should be briskly rubbed into the chest for an hour's space, if possible; and this was done daily by a very efficient attendant, who had sufficient intelligence to comprehend and carry out the treatment. Very early much relief was experienced. On the return of her physician to town at the end of three days she was already so much changed for the better that he directed the treatment to be continued. From that time it consisted in the daily repetition of the rubbing process for a month or nearly so, without aid from medicine, and with little restriction to diet. Beyond the information I received that she was daily improving, I had really little or nothing to do with her professionally after one or two visits. Under the hands of her attendant she speedily got rid of the asthma. The patient went out of town in the autumn and enjoyed perfect health and spirits. She took much walking exercise, with exposure, in the cold of the ensuing winter; and, what is very singular, two years have since elapsed with no return of the asthma.

Before giving directions as to how this treatment should be carried out, I will speak as to the *rationale*. Counter-irritation, especially by blister, issue, and moxa, are of such well-established repute in the treatment of asthma that I need not dwell on them; but, besides this, a jolting vehicle, anything that leads to displacement of the air stagnant in the vesicles, is proved to give relief in many instances. I should advise, then, that the frictions should be made with such roughness as the case admits. Slight blows with the palm of the hand or the end of a towel on the ribs are quite allowable; and the friction should be extended to the front of the neck at the lower part, where the vagi enter the chest. I do not think that the composition of the liniment need trouble us, provided it be warm and work easily. Anything like Roche's embrocation would answer very well.

I am not without some experience of asthma, and I am persuaded that the present method will be found a valuable addition to our thera-

peutic means. If proved not to be novel, it must be conceded that it has fallen into utter neglect.

Treatment of Hemorrhoids.— Hemorrhoids, connected with prolapsus, were successfully operated upon by the application of nitric acid some thirty years ago by Dr. Houston of Dublin. The method found great favor at the time, but has been somewhat displaced by the ligature, and the section followed by the actual cautery. Billroth, of Vienna, has of late revived Houston's operation, and reports excellent results, especially in those cases where frequent and dangerous hemorrhage had occurred.—*Lancet*, June 1, 1872.

TREATMENT OF DIARRHŒA AND INTESTINAL HEMORRHAGE OF TYPHOID FEVER.

In a clinical lecture, published in the *Lancet* of June 29, Sir William Gull says, *inter alia:* Medicines are only required for special conditions: for instance, if diarrhœa occur, some would give what is called "chalk mixture;" but we must remember that this has to go through about twenty-five feet of intestine. The best thing is to fill the rectum with five or six ounces of starch; it is not even necessary to put any opium with the starch. The diarrhœa only takes place when the rectum, sigmoid flexure, or descending colon is affected or irritated by acrid matters; hence, if you fill these the contact of noxious matters is prevented, and the diarrhœa checked. Time would not allow of more being said on this. If hemorrhage occur, many would give gallic acid, or tannic acid, or lead, or some powerful astringent. But do not so; "don't begin with all your great guns at once." It is best to trust to the hemorrhage to cure itself, which it will do, and keep the patient at rest in the horizontal posture, giving a little opium (half a grain) by rectum or mouth if necessary to quiet the intestines. Ice may also be applied to the abdomen. This is sound advice, although it may appear terrible. The objection to giving lead or gallic acid or other powerful astringents is that they are apt to make the patient sick, and in that manner perhaps to make the hemorrhage worse.

A New Method of Nourishing by the Rectum.—Dr. W. O. Leube states that he, after long experimenting, has perfected a method of feeding by the rectum much superior to the old plans, so that he has been able to support a patient for a month, to whom no food whatever was given by the mouth. The injection causes no pain, but rather a general feeling of *bien-faisance*. The preparation is made as

follows:—The pancreas of swine or cattle is carefully cleaned of fat, and 50 to 100 grammes thereof cut into very small pieces. In like manner 150–300 grammes of beef are prepared. Both substances are then put in a dish with about 50 to 150 cc. of lukewarm water, and stirred into a thick paste, and drawn in a clyster-pipe with wide opening. In many cases to the mixture from 25 to 50 grammes of fat may be added, also at times some starch. An hour before using this clyster one of pure water should be administered to clean out the small intestines.—*Deutsches Archiv für klinische Medicin*, March 15, 1872.

The Employment of Caustics in the Amputation of Limbs. M. le Dr. Aubert describes (*L'Abeille Médicale*, June 17; from *Le Lyon Médical*) a method of amputating limbs and of removing tumors by the use of caustics. He uses for this purpose a leaden pipe seven millimetres in diameter, from which he removes a portion of the circumference, so as to transform it into a trough. It is then filled with caustic, and accurately adapted to the periphery of the tumor or to that of the limb to be removed. In some cases these pipes may be passed into the tissues themselves, after the manner of the drainage-tubes of Chassaignac, and in this way the constriction of the tumor or of the limb may be made more complete. The caustic which Dr. A. prefers is the *pâte de Canquoin*.

Creosote in Epithelioma.—In the *Montpellier Médical* for February, 1872, Doctor Forné reports a case, which he believes to have been epithelioma of the lip, cured by the free local use of pure creosote (carbolic acid ?).

Hypodermic Injections of Vaccine Lymph in Small-Pox.—Dr. Robt. Grieve has tried this method, that of Mr. Hurley, somewhat extensively, and found it useless.—*London Lancet*, June 29, 1872.

A New Method of Feeding Patients with Wound of Throat.—Mr. I. B. Scriven, having a patient who had received a wound opening the pharynx, and separating the hyoid bone and thyroid cartilages, performed tracheotomy below the original wound, and inserted an elastic catheter into the œsophagus through the latter. The patient soon discovered that on putting the open end of this tube into any liquid, the latter was rapidly drawn into the stomach, without any voluntary effort of her own. In this way, whilst calmly breathing through the tracheal tube, she would drink up a pint of soup, at first in ten minutes, afterwards in three.—*Indian Med. Gazette.*

Tetanus Treated by Bromide of Potassium and Chloral.—In the *Edinburgh Medical Journal* for July Mr. A. Ferguson reports a successful case of traumatic tetanus. The man took for four weeks 120 grs. daily of chloral and 90 grs. of bromide of potassium (3,600 grs. of the first, 2,700 grs. of the last in all), without appreciable effect on the general system beyond transient loss of memory and the ordinary manifestations attending intoxication.

Bromide of Potassium.—It has been said that the prolonged use of bromide of potassium was injurious to the economy in many ways—notably that it caused loss of memory, diminished the appetite, reduced the weight of the body, and even predisposed to phthisis. With a view of satisfying themselves on these points, the following observations were made by the medical officers of the Sussex County Lunatic Asylum, Haywards Heath. Ten patients, four females and six males, were ordered the bromide, in doses varying from twenty to forty grains, three times a day. Their weights were taken weekly, and the effects carefully noted. It would appear from the observations that, when the bromide is given in doses not exceeding one drachm daily, it almost invariably increases the weight of the body; and that even where this dose is doubled the weight need not necessarily diminish, but rather that the chances are in favor of its increasing. The appetite was never impaired, and the functions of the secretory and excretory systems were not perceptibly affected in any instance. As regards the alleged failure of memory, no opinion could of course be formed from observations derived from insane patients; but the medical officers from whom we are quoting state that they have not, in their experience of the remedy, had any evidence in support of such a view.—*Lancet*, April 20th, 1872.

Treatment of Diphtheria by Inhalations of Sulphur.—Dr. Kieser, in the *Würtemberg. medicin. Correspond.-Blatt*, 1871, No. 35, recommends strongly the treatment introduced originally by M. Barbosa. Three times a day he blows the commercial flowers of sulphur, by means of a little cone of paper (lamplighter), whose bent end is charged with the drug. He states that ordinarily three to six insufflations are sufficient, in cases seen early, to cause the disappearance of the deposit, and the cure is complete in from eight to ten days. In neglected cases nine to twelve applications are requisite, and the cure requires twelve to fourteen days. In most cases the nurses can be readily taught to practise the insufflations. In young infants a glass tube with one end fine and bent, and the other armed with an india-rubber bulb, may be substituted for the paper.—*Revue de Thérapeutique Med.-Chir.*, May 15, 1872.

Intussusception.—Dr. Taliafero reports, in *The Western Lancet*, a case of supposed intussusception. For two days, he says, I tried the most active purgatives and enemata without any effect; remedies were also used for allaying spasm of the bowels; she suffered intense pain over the whole abdomen, but there was no vomiting. A pint of water with two drachms of soda, and the same amount of water with a drachm of the acid, were alternately introduced into the rectum. In an hour there was a copious evacuation from the bowels, and the woman had no further trouble.

Eucalyptus—its Medicinal Virtues.—David Wooster says (*Pacific Med. and Surg. Journ.*):—I have now used some gallons of this extract during a period of eight months in the U. S. Marine Hospital, and am surprised at its uniform and reliable effects in affections for which it is suitable. It is a diuretic of rare virtue, and may be administered when most of the diuretics now in common use are inadmissible. It is an aromatic tonic, and has notable restorative effects in low states of the system, as in typhoid fever, typhoid diarrhœa, and dysentery.

In vesical catarrh it alone cures. In spasmodic stricture it relieves with great promptness. In all affections of the mucous membranes its beneficial action is remarkable. I have treated many cases of acute gonorrhœa with no other remedy. In syphilis it is not useful. It is not antiperiodic. It is very useful externally in chronic ulcers.

Hypophosphites in the Toothache of Pregnancy.—Dr. Sterling believes that the toothache so common in pregnancy results from the abstraction from the blood of the salts requisite for the construction of the bones of the fœtus, and accordingly recommends one and a half grains of hypophosphites of lime, soda, and manganese, daily.—*Nashville Jour. Med.*

Morphia and Chloral.—Dr. R. H. Fisher speaks very highly of the combined use of morphia and chloral for relief of pain.—*Med. News*, July, 1872.

Injection of Morphia before the Inhalation of Chloroform.—MM. Lubré and Guyon recently read a paper before the French Academy, in which they, as the result of four trials, conclude that: We—as M. Claude-Bernard has shown can be done in animals—obtain anæsthesia much more rapidly by combining the action of chloroform and morphia; secondly, that this anæsthesia is of longer duration, and may be kept up by smaller doses of chloroform, the risks of fatal accidents being thereby considerably diminished. They suggest

also that the quantity of morphia injected may be somewhat larger than that which they employed, and that the injection might be conveniently practised a longer time before the operation.—*Med. Times and Gaz.*, March 23, 1872.

Liebreich's Chloride of Æthyl.—This substance was used instead of chloroform in Langenbeck's wards in 1870, and with the best results. It gave rise to no vomiting; sleep was induced easily, but was less profound than with chloroform. Of course it was expected that the latter would soon be superseded, and that the chloride would prove quite innocuous; but a death under its influence, which lately occurred, proved that absolute safety in the use of anæsthetics has not as yet been obtained.—*Lancet*, March 16, 1872.

Tracheotomy by the Galvano-Caustic.—In the *Revue de Thérap. Med.-Chirurg.* of May 15 is contained the account of a discussion, in the French Academy of Medicine, on the successful cure of tracheotomy, performed by Dr. Jaubert, in which the galvano-caustic was used.

A Simple Substitute for the Poultice.—Apply thick wet cloths as dressing and cover with *waxed* paper. Greased paper answers this purpose pretty well also, and can always be readily obtained.

To stop the Bleeding from Leeches.—Make a ball of cotton about the size of a pea; put this pellet of cotton or lint upon the wound; press it down firmly; keep up the pressure for a quarter of an hour. Remove the finger cautiously, taking care to let the pellet remain.—*Druggists' Circular.*

Quinine in Cholera.—Professor Bolkin, in the cholera epidemic which took place in St. Petersburg in 1871, made use of the sulphate of quinine, which he administered in doses of 20 to 30 centigrammes at a time, three or four times a day, and even more frequently if the substance was vomited; in many cases he also made use of a subcutaneous injection of the remedy. After using this remedy the mortality among his patients fell to 17.3.—*The Doctor*, April 1, 1872.

Nitrate of Silver in Bed-Sores.—Betz regards nitrate of silver as the best remedy for bed-sores. Instead of making use, however, of lint dipped in the solution of lunar caustic, he prescribes an ointment composed of five decigrammes of the nitrate of silver, fifteen grammes of lard, and thirty of wax; which he spreads on linen and applies to the sores, taking care that the piece is rather larger than the sore. This is repeated morning and evening.—*The Doctor*, April 1.

Arrest of Epistaxis.—M. le Docteur Marin, of Geneva, recommends, for the arrest of epistaxis (*Journal de Méd. et de Chir. Pratique*, May, 1872), the compression of the facial artery as it runs over the superior maxillary bone near the nose.

A New Preparation of Mercury.—Prumers, of Berlin, desires to introduce ethyl-sublimate or ethyl-chloride of mercury into therapeutic use. After some experiments on animals, he tried it in some syphilitic eruptions by injecting subcutaneously a solution containing one-tenth to one-fifth of a grain; ten to twenty injections suffice. The injections produce scarcely any pain, and no appreciable infiltration or induration of the part, presenting a marked contrast to the injection of corrosive sublimate. There is no disturbance of the digestive organs or salivation. He has also administered the agent in form of pill, the dose being half a grain to a grain night and morning. In this case also there were no unpleasant results.—*Medical Press and Circular*, June 12, 1872.

Bromide of Quinine in Syphilis.—In the *American Practitioner* for July Dr. David W. Yandell confirms Dr. Richardson's statements of the value of the bromide of quinine in chronic advanced syphilis, reporting a number of cures effected by its use. He gives it in doses of two to four grains three times a day until cinchonism is induced, and then in smaller quantities. About three months' treatment appears to be generally required.

A New Way of Combating Muscular Spasm.—M. Broca proposes (*Lyon Médical*) pressure upon the main artery, and consequent partial interruption of the circulation, as a means of combating the muscular spasms which are often troublesome after fractures have been set.

Carbolic Acid in Hydrocele.—In the *American Practitioner* for July Dr. P. E. Sandidge reports a case of double hydrocele cured by injections of two drachms of Calvert's solution of carbolic acid (No. 5), with a small quantity of water, after the failure of tincture of iodine.

Wahoo (Euonymus Atropurpureus) in Chronic Intermittent.—Dr. C. Richmond commends the wahoo in cases of chronic intermittent, especially when there is enlargement of the spleen and dropsy. He says: My manner of using this remedy is in the infusion of the fresh bark. The "fluid extract" I have never found to be as reliable. Two ounces of the fresh bark of the root to one part of water, poured upon it boiling hot and allowed to steep some time; of this,

from half a pint to one pint should be given each day. Drunk warm and in ℥ ij. doses every hour or two, it will generally procure several large watery alvine evacuations. Taken in half the quantity, or every three or four hours, it will act as a diuretic, and should be continued for days, if necessary. I generally give the remedy until it purges at first; then as a diuretic and tonic. Quinine can be given at the same time.—*Indiana Journal of Medicine.*

The Thirst-Cure.—In the *All. Milit.-Ztg.*, 1871, Dr. Pimser says that the result of the thirst-cure in pleurisy is very favorable; and in comparison with all methods of treatment hitherto employed it is very certain and rapid, and hence it is especially useful in hospitals and for persons who are peculiarly anxious to get well rapidly on account of their condition. The cure is commenced immediately after the cessation of the symptoms of pyrexia, that is, the inflammatory stage, since by quickly carrying out the process of sucking up of the exudation, the deposit of fibrinous bands and the occurrence of false membranes is hindered, and a complete recovery of the compressed lung takes place. The cure is certainly a heroic one, but is not at all dangerous to the constitution, even in delicate and emaciated persons, and even not in the cases where pyrectic symptoms still exist when the cure is commenced, since these are alleviated by means of it. If no symptoms of resorption occur during the cure we may in great probability diagnose that there is pus present in the exudation, even though no symptoms betray this. In fact this treatment is not dangerous for the organism, and the patient picks up after it very rapidly.—*The Doctor*, April 1.

Treatment of Venereal Ulcers.—By Dr. Hemard.—In the *Med.-Chirurg. Centralbl.*, 1871, Dr. Hemard asserts that for the last twenty years he has obtained the cure of soft and hard sores by simply irrigating the parts with cold water. A vessel of cold water is fixed to the walls of the room, at such a height that the water which comes from it through a tube attains a certain force of projection. The patient has no more to do but to wash his ulcers every three or four hours under this stream; in a few days the ulcer becomes clean, and quickly heals. All other treatment is superfluous. In ulcers of the prepuce, which are out of sight, after irrigation a little starch flour is introduced. When the superficies of the ulcer has lost its characteristic aspect, a stratum of collodion is painted on it, and it soon heals.—*The Doctor*, April 1, 1872.

Incontinence of Urine.—In the *Atlanta Med. and Surg. Journal* for May, 1872, the repeated use of large steel bougies is

highly commended in puerile incontinence. The treatment is believed to afford relief by obtunding the urethra.

Cotton Wool as a Dressing.—Dr. Wm. Warren Greene commends cotton wool very highly as a dressing for wounds. He uses it in a way similar to that of M. Guérin.—*Boston Med. and Surg. Journal*, May, 1872.

Abdominal Aneurism Cured by Aortic Compression.—In the *London Lancet* of April 20 Dr. Walter Moxon reports a case of abdominal aneurism cured by Mr. Durham and himself, by compressing the aorta on the proximal side by means of Lister's abdominal tourniquet, the pad of which was adjusted and screwed down until all femoral pulsation ceased. The compression was steadily maintained for ten hours and a half, the patient being kept under chloroform. No severe constitutional or local symptoms followed. The aneurism after a few hours commenced to pulsate anew, but remained smaller and harder, and gradually grew smaller, so that at the end of a month all pulsation had ceased in it as well as in the femoral. The patient recovered health and strength.

Chloral in Hydrophobia.—In the *London Lancet* of April 20, I. D. Sainter reports a case, which he considers to have been hydrophobia, cured by the free use of chloral.

Extract of Nettles.—In *London Lancet* of April 20 is a partial report on the use of extract of nettles in whooping-cough, in which is detailed a case where the drug produced a peculiar erysipelatoid inflammation.

Carbolic Acid in Whooping-Cough.—Dr. C. Glen Bott has found carbolic acid to have wonderful power in arresting whooping-cough. He gives $\frac{1}{24}$ to $\frac{1}{36}$ of a drop freely diluted with water every four hours to a child eight years old, or in some cases $\frac{1}{8}$ of a drop three times a day to a child four years old.—*Medical Times and Gaz.*, June 29, 1872.

Carbolic Acid as a Local Anæsthetic.—Dr. A. H. Smith confirms (*New York Med. Journ.*) the value of carbolic acid as a local anæsthetic. He painted a spot on the forearm, about an inch in diameter, with carbolic acid of about the strength of 85 per cent. For about a minute there was a slight burning sensation, after which the integument became entirely insensible, the cuticle being whitened and shrivelled, and the spot slightly elevated. He then made an

incision without feeling it. The capillary circulation seemed not to be materially interfered with, as the blood flowed as freely as it would from a similar wound under ordinary circumstances. The reparative process was also not impaired, adhesion taking place immediately. Three hours after the application of the acid a needle could be thrust freely into the skin without causing pain.

Again carbolic acid was applied as before, and ten minutes after a fly-blister was placed upon the spot. The blister remained eight and a half hours without causing any pain, and without producing vesication.

He has also used the acid in this way successfully in opening superficial whitlows, and further commends it in the form of spray in persistent bronchial irritation.

He finally suggests the use of a strong solution of carbolic acid as a revulsive, in cases in which a continuous impression is desired. While causing but little suffering, it produces an intense hyperæmia of the skin, which persists for eight or ten days, and is followed by desquamation of the cuticle.

Nitro-muriatic Acid in Cirrhosis of the Liver.—Dr. J. H. Kidder, U. S. N., commends most highly (*Western Lancet*, May, 1872) nitro-muriatic acid used externally in cirrhosis. He says, *inter alia* :—

"The acid should always be made extemporaneously by adding to five parts, by volume, of strong hydrochloric acid, three parts of nitric. The additions must be made gradually, shaking the bottle well each time. After the acids have been well mixed, the bottle or jar should be left unstoppered for twenty-four hours before use. Three (3) fluid drachms of this acid, diluted with one pint of water, form a lotion, which is to be applied over the region of the liver twice a day, with *brisk friction*, while at the same time the feet are immersed in a bath of the same. The hands of the attendants making the application should be protected by oiled silk gloves, else, as stated by Inspector Martin and verified by my own experience, bilious diarrhœa will result to them, from absorption of the acid through the palms of the hands. If the practitioner please, he may give the acid internally, in the usual doses, but I have found its administration in this manner not effective, and very likely to disturb the already vitiated processes of digestion.

Nitrite of Amyl in Puerperal Convulsions.—Dr. Wm. F. Jenks reports a case of puerperal eclampsia, in which nitrite of amyl arrested at once the convulsions, but the inhalation was fol-

lowed by frightful hemorrhage. Dr. Jenks, commenting on the case, says: First of all, there exists during gestation hydræmia, producing thereby an increased vascular tension, giving rise in some cases to symptoms such as were present in this patient during the latter months of gestation. At the time of labor, the intra-cerebral vascular pressure is increased to such a degree that a serous exudation takes place, producing œdema of the brain-tissue and dropsy of the membranes. As the result of this *extra*-vascular pressure, a condition of secondary anæmia is mechanically brought about. This it is which produces the eclamptic spasm, each one of which bears with it new danger to the patient, viz.: an increase in the amount of the exudation, resulting finally in an œdematous imbibition of the nervous centres, which is fatal. Not only in the brain, but also in the lungs is this increased vascular tension productive of mischief, for some cases which survive the convulsions die after labor of œdema of the lungs. Hence the diminution of this vascular tension becomes an *indicatio vitalis*. The lancet is the readiest means, but the relief is not always immediate; a certain amount of time is requisite to regulate the new conditions of intra-vascular pressure, and any agent which will rapidly diminish this tension of the vessels will, *à priori*, check the imminent spasm and abort the attack.

This is the first action of the nitrite of amyl, and this property led Dr. S. Weir Mitchell to suggest its use to me in cases of puerperal eclampsia. In this individual case its action in arresting the spasm was immediate and satisfactory. Its use carries with it, I fear, however, a certain amount of danger. It relaxes also the muscular system, and the profuse post-partum hemorrhage I had to deal with after the uterus had once firmly contracted may perhaps have had its origin in the use of this drug.

(Physiological teachings certainly indicate that the inhalation of nitrite of amyl after delivery must of necessity cause flooding.—Ed. N. R.)

Method of Disinfecting.—Dr. Clemens (Frankfort O. M.) highly recommended burning a spirit-lamp containing chloride of copper in the hospital wards. It must not be used in excess, on account of the irritating effects on the throat, eyes, etc. His formula is:—

℞ Liq. cupri perchlor. conc..... ʒ ij.
Chloroformi..... ʒ i.
Spirit. vini..... ℥ vj.

This is put in a common spirit-lamp containing a wick, and allowed to burn two or three times a day, five or eight minutes each time.—*Detroit Review of Medicine.*

Treatment of Buboes.—Dr. R. C. Brandies, in a letter to the *Richmond and Louisville Medical Journal* from Vienna, says that Professor Zeissl, the Chief Physician of the Second Division for Syphilitics in the Vienna General Hospital, has had marked success in treating acute and subacute inguinal and femoral buboes with acetate of lead. This treatment has now been carried on in the following manner for the last two years: If, after the first examination, it may be hoped that the integument covering the glandular enlargement can be saved, it is thoroughly washed and cleansed of all foreign matter adhering to it. The patient is put to bed, and a compress, soaked in a solution of the acetate of lead, is applied to the swelling. The compress is moistened from time to time, so that the bubo is always bathed with the solution. After three or four days the skin covering the swelling is already considerably thickened and toughened. If any fluctuation be noticeable at the beginning of treatment, we generally find that it gradually disappears, and that the swelling acquires a doughy consistency. Should the pus increase in quantity, a vertical incision with a bistoury is made into the mass, care being taken that the wound be not too large, as it is desirable that the contained matter should escape but slowly. This evacuation is promoted by the application of the moist compress, which is held in apposition with the diseased parts by means of a spica bandage.

Treatment of Articular Rheumatism by Ice.—In the *Gaz. Méd. de Strasbourg*, February, 1872, we notice that Dr. Esmarch published in the *Langenbeck's Archiv*, about 1861, some observations on this subject. In the past winter there presented themselves in the ambulances four cases of acute rheumatism, which were treated by means of ice alone. In the first there was great pain in the joints of the feet; during the day the affection extended to the knee-joints, where ice was locally applied. On the morrow the superior extremities were also affected with pain, the pulsations of the heart were weak, and the first sound accompanied by a murmur. All the painful articulations were covered with bladders containing ice. On the fourth day the pain had almost disappeared; on the fifth the pulsations of the heart were normal; on the sixth there were no longer any local symptoms; on the seventh the fever had ceased.

Two other cases were similarly followed by equally favorable results in the space of four days. In a fourth case ice was not used until the fifth day, but in four days after this the pain had disappeared with all other symptoms. Before the ice was applied the temperature increased gradually, but after its application it gradually became lowered. The author says that he would not hesitate to use ice even in cases of gout;

and as to the metastasis of rheumatism to the brain, he considers this to be the effect of the temperature. At Kiel there was received into the hospital a patient with rheumatic delirium, and with a temperature of 43° C. He was immersed in water, and a cure took place. The application of ice should be continued until all symptoms disappear. The author is convinced that when the prejudice against the use of ice is overcome, it will be used often in acute joint-affections. Ice-bladders should be used, and not cold compresses, as Priessnitz did.— *The Doctor.*

Hydrochlorate of Ammonia.—Dr. Spencer Thompson says, in the *British Medical Journal*, that he has found this one of the most efficient remedies in portal dropsy, in scruple or half-drachm doses, tolerably diluted, every six or eight hours.

A Simple Method of Arresting Epistaxis.—Dr. Roland G. Curtin says (*Phil. Med. Times*), Dr. Albert H. Smith, in order to soften the nasal mucus of children in the nostrils, recommends the introduction of lard upon a small roll of fine linen wrapped like an ordinary lamplighter.

It occurred to me, in a case of epistaxis, that a similar roll of paper, moistened with water and coated with the dry tannic acid, inserted into the nose, might be of service. I tried it, with immediate success.

I have since found that old linen answers the purpose better than paper applied as above, as it makes a better carrier, being softer, more flexible, and less liable to break down through excess of moisture. I have also found that the powder adheres better if soft lard be used instead of water.

I have tried this repeatedly with uniform success, and believe, if it were resorted to, that the disagreeable operation of plugging would seldom be found necessary.

MATERIA MEDICA.

DETECTION OF ADULTERATION OF OIL OF EUCALYPTUS.

BY H. DUQUESNEL.

THERE are four adulterations practised:—

1. By alcohol.
2. By fixed oil.
3. By oil of turpentine.
4. By another volatile oil, as of copaiba, decolorized, and, as far as possible, deodorized.

1. To detect alcohol, mix the suspected oil with its bulk of water in a graduated tube, and agitate. On standing the liquids separate, and the increase of bulk in the water indicates with sufficient accuracy the amount of alcohol present.

Fuchsine, or aniline, affords a still better test for very small quantities of alcohol, for if the latter be present the liquid acquires a more or less deep red color, according to proportion of the alcohol; if it be absent the original color is maintained.

2. To detect a falsification by a fixed oil: Drop on paper in the usual way, or distil a little of the oil on water.

3. Oil of turpentine.—Even as much as twenty-five parts in one hundred of the oil of turpentine may be added to the essential oil of eucalyptus without being perceptible to the smell, and hitherto no good method of detecting the adulteration has been devised.

After stating that neither density nor effect of polarized light is of avail in detecting this fraud, M. Duquesnel says that the boiling-point may be used, and gives the following table:—

Pure non-rectified oil.	Pure rectified oil.	Impure oil.				
		5 per cent.	10 per cent.	15 per cent.	20 per cent.	25 per cent.
169°–171°	169°–171°	169°	168°–169°	167°–168°	167°	166°–167°

To detect the oil of turpentine in this way requires, however, a certain amount of practice, besides a very sensitive thermometer, or a little distillatory apparatus, composed of a small tube, in the bottom

of which is placed one or two cubic centimetres of the suspected essence. This tube is so arranged that a thermometer fixed in the cork that closes the orifice of the tube, will be bathed only in the vapor escaping through a small tube set in the cork.

A more easy method is offered by the chemical reactions of iodine. The oil of turpentine, treated with iodine, gives origin to a slight explosion, accompanied by the disengagement of purple vapors. Oil of eucalyptus has not this property. The following table indicates the sensitiveness and value of this test:—

Powdered iodine, 0.15. Oil, 3 drops.

Pure oil, non-rectified.	Pure oil, rectified.	Impure Oils.				
		5 per cent.	10 per cent.	15 per cent.	20 per cent.	25 per cent.
None.	None.	Evident explosion.	Explosion more pronounced.	Explosion still more pronounced	Explosion more violent.	Explosion violent.

Still another and more rapid and surer means of detecting the turpentine is by examining the solubility in alcohol. The strength of the latter should be 73 degrees, at a temperature of 14° (C.). To dissolve one cubic centimetre it is necessary to add of the alcohol—

	Pure oil, non-rectified.	Pure oil, rectified.	Impure oil.				
			5 per cent.	10 per cent.	15 per cent.	20 per cent.	25 per cent.
Alcohol,	1.6 cc.	1.6 cc.	1.90 cc.	4 cc.	6.5 cc.	14. cc.	16. cc.

4. Copaiba.—This adulteration is best detected by studying the boiling-point; the temperature at which ebullition occurs being for copaiba 260°; for oil of eucalyptus, 169° to 171°. The solubility in alcohol can also be employed as a means of testing.—*L'Union Pharmaceutique*, March, 1872.

BASIC AND NEUTRAL BROMO-HYDRATES OF QUINIA AND OF CINCHONIA.

BY M. LATOUR.

HEAT in a matrass of glass a mixture of

Bibasic sulphate of quinia	10 parts.
Alcohol at 85°	50 "

then add a solution—

Bromide of potas	8 "
Distilled water	20 "
Diluted sulphuric acid (1 part to 100)	10 "

Boil, and after some minutes filter to separate the sulphate of potassa; wash this salt with hot alcohol, mix the alcohol, concentrate to a very small quantity by heat, and set aside to crystallize. At the end of twenty-four hours remove from the crystals the liquid by bibulous paper; the resultant is a *neutral salt.*

For a *basic* salt the following proportions are used:—

Sulphate of quinia (bibasic)	10 parts.
Alcohol at 85°	50 "
Bromide of potassium	5 "
Distilled water	20 "

Neutral Bromo-hydrate of Cinchonia.—The following proportions are used:—

Sulphate of cinchonia (bibasic)	10 parts.
Alcohol at 85°	50 "
Bromide of potassium	8 "
Water	10 "
Dilute sulphuric acid (1 to 100)	20 "

—*L'Union Pharmaceutique*, May, 1872.

ON THE SOLUBILITY OF SOME SALTS OF QUININE.

In *L'Union Pharmaceutique* (April and May), M. Schlagdenhauffen has an elaborate paper with the above caption, from which we abstract the following table:—

Quantity dissolved in one cubic centimetre.

Name of Salt.	Temperature (C.).		
	30°.	20°.	10°.
Acetate	0.091	0.037	0.027
Chlorohydrate	0.092	0.049	0.031
Hypophosphite	0.12	0.097	0.065
Formiate	0.33	0.296	0.272
Lactate	0.35	0.31	0.29
Sulphomethylate	0.80	0.71	0.60
Sulphovinate	0.80	0.72	0.60

EMULSIONS.

M. Rother has a paper in the *Pharmacist* with the above caption. In it, after some preliminaries, he condemns entirely the process of shaking in a bottle, also that in which sugar, gum, and oil are all rub-

bed together in a mortar, and then water gradually added in small portions, with constant trituration. He then remarks:—

By a third process, devised by Overbeck, given in a note to the U. S. Dispensatory, and also recommended by Mohr in his "Pharmaceutical Technics," a definite quantity of oil, gum, and water, in proportions adjusted according to the nature of the oil that is employed, is all rubbed up at once in a mortar, and, when the proper union has taken place, more water is gradually added. This method is quite good, and yields very few failures, where the oil does not exceed two fluid ounces, but with four fluid ounces of oil in one quantity the process becomes precarious.

A fourth method is given in the U. S. Dispensatory. According to it the gum is first mixed with water, in the same proportion as it exists in the officinal mucilage of the Pharmacopœia; the oil then added, mixed and diluted with the prescribed amount of water. In this case the oil is usually added in a thin but continuous stream with rapid stirring. This process is nearly as good as the preceding one, but often the emulsion is not as perfect as it should be.

These operations have mostly reference to the fixed oils and balsams, and are not equally applicable to the volatile oils, which, as a class, are much more difficult to emulsify. Experience demonstrates that the thicker and more viscid the oil the easier it is emulsified. The volatile oils, owing to their great mobility, are the most difficult to overcome. Castor oil and oil of turpentine are typical of these opposite extremes.

Thus it becomes evident from the disconnection and dissimilarity of these methods, that the true principle upon which the process of emulsification depends has been either entirely unknown or completely disregarded. A perfect emulsion is characterized by its dazzling whiteness, its uniformity, and the property which admits of its dilution to even an extraordinary extent without destroying its appearance or identity. The incipient or complete emulsion, in its most concentrated form, from the moment of its generation, is unmistakably distinguished by its whiteness, and the peculiar tenacity which causes the pestle, when moved through it, to give the characteristic crackling sound of the emulsion; when these indications evince themselves the success of the operation is assured.

Now the writer observed that by following Overbeck's method, and using a broad mortar, if the trituration be confined to a narrow space for a moment until perfect emulsification has taken place, even in a small portion of the material, and then gradually bringing the rest of it within this centre, a perfect emulsion was invariably attained. Applying this manner of manipulation in the process of the U. S. Dispensatory, that is, instead of pouring the oil upon the mucilage in a

continuous stream, adding only a small portion at first; this, with the large proportion of mucilage, never fails to emulsify. The remainder of the oil is then added in small quantities at a time, and each perfectly emulsified before introducing the next. Finally, the perfect emulsion is diluted to the required measure. The writer now further observed that when the proportion of oil was great, in comparison to the mucilage, a time would arrive during the addition of the oil when this ceased to merge with the emulsion; in no instance, however, was the previously-formed emulsion ever disintegrated or deranged. Therefore, it was assumed that the inaction originated in a deficiency of water, consequently this addition was made, and complete emulsification again and immediately resulted. The addition of oil was then continued, occasionally adding water, as the mucilage could at any period of the operation be diluted with water to any desirable volume without decomposition. This principle was now applied to oil of turpentine, assumed to be the most refractory in the category of oils.

Two fluid drachms of officinal mucilage of acacia was placed into a broad, conveniently-sized mortar, and diluted with one fluid drachm of water. Half a fluid drachm of oil of turpentine was then added, and the whole triturated a few moments until the oil was emulsified. One and a half drachms of oil was then added in half-drachm portions, emulsifying each before adding the next: this was followed by one drachm of water. Five fluid drachms of oil was now introduced in the same manner as before, and again followed by half a drachm of water. After this three drachms of oil were again incorporated as above, and still the emulsion retained its perfect appearance, and ever ready to extinguish quantities of oil to an almost unlimited extent. However, this was not required, and therefore the incorporation of oil was here discontinued, and the emulsion diluted with water.

Upon these deductions the following theory is established:—A concentrated, perfect emulsion is in itself the most rapid and efficient emulsifier, and possesses the property of emulsifying oil to an almost unlimited extent.

This theory is expressed in the following rule for the emulsion:—

Introduce the emulsifier into a broad, conveniently-sized mortar; this may be already a perfect emulsion, as the yolk of eggs, but if it is gum this must be in the form of mucilage, either thick or thin, according to the nature of the oil. Now pour in a small quantity of oil, and triturate this with the mucilage until a perfect emulsion has formed, then add the rest of the oil on small portions at a time, and not until the previous addition has been perfectly emulsified, adding small quantities of water at intervals, as the indications may require. Finally, when all the oil has been incorporated, gradually add the pre-

scribed volume of diluent. When both a fixed and volatile oil are prescribed in an emulsion, the fixed oil must be emulsified first before the addition of the other.

In the *Pharmaceutical Journal* of May 25th, Mr. T. H. Hartwick says:—

Mr. Rother has made known a perfect method of preparing an emulsion of turpentine with mucilage, hitherto, at the best, but an unsatisfactory performance; there is, however, one point essential to insure complete success, which has apparently escaped his attention, and that is the use of fresh mucilage.

TO PREPARE EXTRACT OF LICORICE.

R. ROTHER.

Liquid extract of licorice-root is prepared by exhausting the root in coarse powder, by means of percolation, with a menstruum consisting of alcohol $\frac{1}{4}$ or $\frac{1}{6}$, and water $\frac{3}{4}$ or $\frac{5}{6}$, with about 2 fluid drachms of about 16 or 18 per cent. ammonia-water in each pint of the mixture. The percolate is heated to boiling, to precipitate the dissolved albumen, and filtered hot; the residue on the filter is washed with hot water and the filtrate evaporated to half the weight employed. This process may further be stated as follows:—

Take of licorice-root in No. 20 or 24 powder, 32 troy ounces.
Alcohol one pint.
Water sufficient.
Water of ammonia (16 or 18 per cent.), $1\frac{1}{2}$ fluid ounce.

Mix the alcohol with 5 pints of water and add the ammonia. Moisten the powder with six fluid ounces of the mixture, pack firmly in a cylindrical percolator, forming a column of medium height, and pour on the remainder of the mixture, and then water until six pints of percolate have passed; heat this to the boiling-point and filter; when the liquid has disappeared from the surface mix the residue with a pint of water, heat and filter; mix the filtrates and evaporate.

BRANDY FROM WOOD-SHAVINGS.

C. G. Zetterlund has been making some experiments in the distillery at Hulta to make brandy out of shavings. For this purpose they were boiled in an ordinary kettle under a pressure of 0.116 kilo-

grammes of steam to the square centimetre. There was then put into the kettle:—

Shavings (pine and fir, very wet)	9.0 cwt.
Sulphuric acid, 1.18 sp. gr	0.7 cwt.
Water	30.7 cwt.
Total	40.4 cwt.

After boiling eight and a half hours the mass of shavings contained 3.33 per cent. grape-sugar, and after eleven hours' cooking 4.38 per cent. A further increase in the quantity of sugar could not be attained. There was attained in all, from the 40.4 cwt., about 1.77 cwt. of grape sugar, or about 19.67 per cent. of the weight of the shavings. The acid was neutralized by lime, so that the cooled mash ready for fermentation contained one-half degree of acid, according to Luders-dorff's acid tester. The mash had a temperature of 30° C. when the yeast, prepared from only 20 pounds of malt, was added. At the end of ninety-six hours the mash was done fermenting, was then distilled, and yielded 61 quarts of 50 per cent. brandy at +50° C., perfectly free from all smell or flavor of turpentine, and of a very pure taste. It is more than probable that the manufacture of brandy from shavings on a large scale would succeed if it were ascertained by experiment with how much water the acid must be diluted and how long it must be boiled; for both of these circumstances exert a great influence over the production of the sugar. If it were possible to convert the whole of the cellulose in the shavings into sugar, each hundred weight of air-dried shavings would yield about seven gallons of brandy of 50 per cent. The shavings of the leaf-bearing trees would probably give the best results.—*Jour. of App. Chem.*

SOLUBILITY OF BISULPHIDE OF CARBON IN WATER.

F. Sestini (*Gazet. Chim. Ital.* in *Jour. Chem. Soc.*) states that carbon bisulphide is not quite insoluble in water. After several days' contact, at ordinary temperatures, water takes up about one part in 1,000 of its weight of this compound, a very small quantity at the same time undergoing decomposition. The aqueous solution, when distilled, gives up the carbon bisulphide unaltered, at the commencement of the distillation. It has the odor of the compound, a slight burning taste, and does not contain more than 0.002 gram. of hydrogen

sulphide in a litre. With regard to reactions with the hydrates of the alkaline earth, it is said that when a mixture of water, calcium hydrate, and carbon bisulphide is exposed to the action of solar light in summer, the liquid in six or eight hours acquires a fine yellowish-red color, and during the following night deposits a few very fine prisms of orange-red color. The same reaction takes place in two hours when carbon bisulphide is heated to about 50° with milk of lime. The liquid, filtered while hot, does not deposit any crystals on cooling, but, on adding calcium hydrate to the cooled filtrate, it yields the prismatic crystals above mentioned. These crystals consist of a compound of hydrate and sulpho-carbonate of calcium.

OBSERVATIONS ON TESTS FOR QUININE AND MORPHINE.

BY PROFESSOR FLÜCKIGER.

THE most characteristic test for ascertaining the presence of quinine is the formation of the splendid green compound called *Thalleiochine*, which is produced if solutions of the alkaloid or its salts are mixed with chlorine-water and then a drop of ammonia added.

It is known by Pelletier's researches that some other akaloids are also altered by the above treatment, yet without assuming the same colorations. Morphia, for instance, shows a red hue, very quickly turning dark brown.

I was induced by a lamentable poisoning case to examine the behavior of the two alkaloids when mixed. The first question was to ascertain the smallest quantity of *quinine* which, in solution, displays the green color. If one part of quinine is dissolved into 4,000 parts of acidulated water and then about $\frac{1}{10}$ of the volume of the liquid of chlorine-water and a drop of ammonia added, a green zone will be readily formed if the liquids are cautiously placed in a flask without shaking. If the solution of quinine contain no more than $\frac{1}{5000}$, the green zone may still be obtained, but in more diluted solutions the success becomes more and more uncertain. From a practical point of view we may state that $\frac{1}{5000}$ of the alkaloid is the smallest quantity whose presence can thus be discovered with certainty. Kerner (1870) has succeeded with $\frac{1}{20000}$, but I was not able to corroborate this statement.

As to morphine, its solutions assume a yellow hue if chlorine is added, whereas chlorine does not at all alter the colorless solutions of quinine.

The dark-brown coloration of *morphine* in solution, to which chlorine-water and ammonia have been added, is no longer produced if less than $\frac{1}{1000}$ of morphine is present.

From these observations it may be foreseen what must happen if a mixture of salts of both those alkaloids be tested by chlorine and ammonia. The green color, thalleiochine (thalleiochine), will appear notwithstanding the morphine if the amount of the latter is less than $\frac{1}{1000}$ of the solution. But the test of quinine fails if there be more than $\frac{1}{1000}$ of morphine present, even when the quinine is in considerable quantity. The green color of the thalleiochine is enveloped by the dark dingy-brown color due to the salt of morphine.

In a specimen of quinine containing morphine, or *vice versâ*, the presence of either of them can be shown as one pleases by means of chlorine and ammonia. In the comparatively concentrated solution the brown color of morphine will make its appearance, whereas thalleiochine results as soon as the quantity of the solvent much exceeds the proportion of 1,000 parts to one of morphine.

This is an illustration of the importance of not relying upon one test alone. In the fatal case alluded to, the presence of quinine happened to be ascertained, but morphine was overlooked. There was certainly no reason for presuming the presence of the latter, but one drop of nitric acid poured on the supposed hydrochlorate of quinine would have pointed out the presence of morphine, and spared the lives of two women.

I was curious to know the effect of bromine instead of chlorine in the above tests. The salts of morphine are apparently not altered by bromine and ammonia, but salts of quinine are more intensely colored by the latter process. The thalleiochine is then indeed produced in solutions which contain only $\frac{1}{2000}$ of quinine. Yet the behavior of bromine displays some striking differences. Chlorine alone, as already stated, causes no immediate alteration of somewhat diluted solutions of quinine, whereas they become turbid on addition of bromine as long as there is about $\frac{1}{2500}$ or more of quinine present. Now the precipitate which is produced by bromine in the solution of quinine does *not* turn green if a little ammonia is subsequently added, or, at least, the thalleiochine thus obtained is rather grayish. But in more dilute solutions of quinine, bromine acts more readily than chlorine. An excess of bromine is to be carefully avoided. This is easily performed if the vapor of bromine, not the liquid bromine itself, is allowed to fall down on the surface of the solutions of quinine; their superficial layer only must be saturated with bromine by gently moving the liquid. Then a drop of ammonia will produce the green or somewhat bluish zone, which is much more persistent than that due to chlorine.

Consequently, for demonstration of the test under notice, chlorine is to be used in comparatively concentrated solutions. In solutions containing so little quinine (less than $\frac{1}{2500}$) that it is no longer precipitated by vapor of bromine, the thalleiochine test succeeds much better with bromine, and goes much further, as shown above.

A well-known test for morphine is iodic acid, which is decomposed by the alkaloid, and forms a beautiful violet solution with bisulphide of carbon and chloroform. This test succeeds with solutions containing no more than $\frac{1}{10000}$ part of morphine.—*Neues Jahrbuch für Pharmacie*, April, 1872.—*London Pharm. Journal.*

COMPOSITION OF BEER.

Mons. A. Metz made an analysis of some beer manufactured at Weisenau, near Mayence, from a mixture of forty cwt. of malt to eight cwt. of rice. He found that it contained of

Alcohol	3.65 per cent.	
Sugar	1.63 "	
Dextrine	5.13 "	
Proteids	0.37 "	7.36 per cent. extract.
Inorganic matter, including phosphoric acid	0.22 "	
Difference	0.01 "	

Compared with an average resulting from the examination of thirty-one different kinds of Bavarian beer by Mons. C. Prandtl, it will be seen that the amount of alcohol is about the same; but the total amount of extract, and especially the quantity of sugar, exceeds that of any of the Bavarian kinds. Mons. C. Prandtl found in Bavarian beer—

	On the average.	Maximum.	Minimum.
Alcohol	3.55 per cent.	3.98 per cent.	3.23 per cent.
Total Extract	6.07 "	6.61 "	5.42 "
Sugar	1.08 "	1.38 "	0.82 "

This rice beer is exceedingly clear and light; it effervesces, and has a peculiarly mild taste.—*Food Journal.*

Emulsion of Turpentine.—I. Winchele Forbes commends highly (*Amer. Journal of Pharmacy*) the following method:—

First. Pour the turpentine into a two-ounce vial, and shaking so as to coat the inside of the vial with a film of turpentine; this is to prevent the action of the moisture usually present.

Secondly. I add one scruple powdered acacia, and mix thoroughly with the oil.

Lastly. Half a fluid ounce of water is added, and the whole is well shaken. A perfect emulsion is the result, requiring less time for its preparation than to read the foregoing directions. The bottle may then be filled up with mucilage, or, according to my experience, a better product is obtained with water simply.

The deviation from the letter of the law in regard to the gum strength of the emulsion needs no apology to the practical pharmacist, as the sole object in view is to emulse the oil, and it will be found that ten grains to the fluid ounce of emulsion will afford a product superior in all respects (especially in fluidity) to one containing more gum, and more nearly approaching the peculiar characteristics of that most perfect of all emulsions—cow's milk.

Test for Creosote and Carbolic Acid.—I. N. R. Morson proposes (*L'Union Pharmaceutique*, June, 1872) to take advantage of the insolubility of creosote in glycerine, to detect the adulteration or substitution by carbolic acid—the presence of a very small amount of the latter, he states, renders the creosote soluble.

Manufacture of Collodium.—According to August Vogel, collodium is prepared in the following manner in the laboratory of the Royal University at Munich. Thirty parts (by weight) of finely powdered saltpetre are put into a glass cylinder with thirty parts of English sulphuric acid, and stirred with a glass rod until the saltpetre is entirely dissolved. Into this mixture are thrown two parts of cotton wool and stirred actively for five minutes. The cotton is then freely washed with large quantities of water until its reaction is scarcely acid. To hasten the operation, the cotton is then treated with strong alcohol until every trace of acid has been removed. The material is finally dried in thin sheets. This gun cotton is freely soluble in a mixture of equal parts of sulphuric ether and alcohol, and this collodium, poured upon a glass plate, leaves a perfectly transparent residue.—*Neues Repertorium für Pharmacie*, Heft I. vol. xxi., 1872.

Bed of Glauber's-Salt.—A deposit of Glauber's-salt has lately been discovered in the Caucasus, not very far from Tiflis and Marienfeld. In sinking a shaft the experimenters first passed through one foot of marl, two and a half feet of gray moist clay, seven of dark-gray bituminous saline clay, then penetrated a bed of pure Glauber's-salt to a depth of five feet, with a probability that the thickness was much greater. In the same region there are various lakes filled with solutions of Glauber's-salt, which furnish the apothecaries of that

neighborhood with what they need of that substance, as it crystallizes in perfect purity along the edge of the water.—*Harper's Monthly.*

Estimation of Purity of Glycerine by its Specific Gravity.

Specific Gravity.		Per cent. Glycerine.	Amount of Pure Glycerine to the Litre.
According to Fabian.	According to Metz.		
——	1.261	100	1.2612 kilogram.
1.232	1.232	90	0.1088 "
1.220	1.206	80	0.9648 "
1.179	1.179	70	0.8255 "
1.159	1.153	60	0.6918 "
1.127	1.125	50	0.5625 "
1.105	1.099	40	0.4396 "
1.075	1.073	30	0.3219 "
1.051	1.048	20	0.2096 "
1.024	1.024	10	0.1024 "

—*Vierteljahrschrift für praktische Pharmacie,* Heft 2, 1872.

Bromine as an Oxidizing Agent.—According to P. Waage, bromine is a very energetic oxidizer of all other substances, and will convert the sulphuret of a metal into sulphuric acid and the oxide of the metal.—*Ibid.*

Adulteration of Aniline Colors.—According to Joly, sugar is now extensively used to adulterate the aniline colors. It can best be detected by treating the dye with a mixture of alcohol and ether, which dissolves the aniline and leaves behind the sugar.—*Ibid.*

Upon Solution of the Metallic Benzoates in Fats.—M. Godin confirms the statement of M. Ricker that the metallic benzoates are soluble in the oils, and proposes to make cod-liver oil ferruginous in this way.—*Journal Pharm. et de Chemie,* April, 1872.

To Purify Tannic Acid.—M. Heinz states that commercial tannin owes its odor to a greenish resin, and that it may be rendered inodorous in the following way:—Dissolve the tannin in twice its weight of hot water. Introduce the solution into a glass vessel, and add one and a half parts of ether for every six parts of tannic acid. The mixture is greenish and turbid. After some hours the coagulated coloring matter precipitates, and the clear solution may be evaporated.—*Ibid.*

The So-called African Saffron.—By John R. Jackson, A.L.S., Curator of the Museums, Kew.—From the description of the so-called African Saffron by Professor Maisch, at p. 824 of the Journal, there seems no doubt but that the flowers are those of *Lyperia crocea*, Eckl., a scrophulariaceous plant of South Africa, small quantities of which have been imported into this country from time to time, chiefly for use as a dye.—*London Pharm. Journal.*

Test for Arsenic in Sulphuric Acid.—The presence of arsenic in concentrated sulphuric acid may be detected by cautiously adding drop by drop from 2 to 3 c.c. to a solution of a little stannous chloride in from 4 to 6 c.c. of hydrochloric acid of sp. gr. 1.12, the liquid being gently agitated after each addition. If arsenic be present, a yellow coloration changing to brown is produced; if not, the solution remains clear. This test is said to answer if the 500,000th part of arsenious acid be present.—*Dingl. Polyt. Journal.*—*London Pharm. Journal.*

Methylic Ether as a Means of Obtaining Cold.—Tellier has taken advantage of the extreme volatility of the ether produced by the action of sulphuric acid upon methylic alcohol as a means of obtaining cold. The various methods or machines employed may be found described in *Zeitschrift des Allgem. Oesterreich. Apotheker-Vereins*, June 1, 1872.

To Distinguish the Alcoolatures and Tinctures.—MM. Conche and Colton propose the following methods:—To ten drops of tincture or alcoolature (solution of fresh juice in alcohol) add five drops of the solution of the sub-acetate of lead; in the tincture a dirty yellow precipitate is formed, in the alcoolature one much less deep and verging on green.

A much more sensitive test is by adding to the preceding mixture fifteen or twenty drops of ammonia, when the precipitate deepens with the tincture, and on shaking with water a dirty yellow foam is formed; with the alcoolature the precipitate is white and the foam colorless.

A still greater sensitiveness is acquired by adding to the ammoniacal mixture a solution of sulphate of copper, which produces a green much more rapidly in the alcoolature than in the tincture; the first is also more yellow than the last.—*L'Union Pharmaceutique*, March, 1872.

Berberin in Coptis Trifolia.—In the *Neues Repertorium für Pharmacie*, Heft 4, Bd. XXI., 1872, Büchner confirms by analysis the discovery of Maish and Procter that berberin exists in quantity in gold-thread.

Acids of the Tomato.—According to S. D. McElhenie (*Journal of Pharmacy*), the acids of the tomato are citric, oxalic, malic, and tartaric in very small quantity.

Delicate Test for Gallic Acid.—Strasbourg (Pflüger's *Archiv*, IV.) announces an extremely delicate modification of Pettenkofer's test for gallic acid in the urine, suitable for clinical purposes. A strip of filtering-paper is dipped in urine, to which a little common sugar has been added, and on this paper, after drying, a drop of concentrated SO_3 is placed by means of a glass tube. If gallic acid be present, the paper assumes an intense violet color.

Stramonium Smoking.—A. Hirschberg states that when cigarettes of stramonium are smoked for asthma, there is no daturin whatever received in the system, but that the active principles generated are pyridin alkaloids.—*Zeitschrift des Allgem. Oester. Apothek.-Vereins*, June 10, 1872.

Polygonium Hydropiper.—Rademacher has obtained an acid from P. hydropiper which he believes to be its active principle. He first exhausts two pounds of the plant with dilute alcohol, distils off the alcohol, evaporates the watery residue to one-third its original bulk, and then filters out the resin-oil deposit. Acetate of lead is then added to the liquid, and the yellow precipitate, after repeated washings, is decomposed by sulphuretted hydrogen. The filtrate is now shaken with ether, and the latter allowed slowly to evaporate. The crystals which form are soluble in ether, alcohol, and chloroform, with difficulty in dilute alcohol. Under the microscope they resemble greatly uric acid in form. They are green, of a sharp, bitter taste, and strongly acid in reaction and general behavior.—*Zeitschrift des Allgem. Oester. Apothek.-Vereins.*

Table Showing Amount of Sulphuric Acid Necessary to Dissolve Alkaloids for Hypodermic Injection.

Alkaloid, 1 part.	Acid.
Aconitia (Duquesnel)	1 part.
Atropia	2.5 "
Narceine	7.5 "
Strychnia	2.5 "
Veratria	2.5 "

—Adrian, *L'Abeille Médicale*, July 15.

Table Showing Amount of Distilled Water Requisite to Dissolve Certain Alkaloid Salts.

One part.		Crystallized Alkaloid.	Water necessary.
Muriate of morphia, containing		0.80 parts.	20 parts.
Sulphate of morphia	"	0.76 "	10 "
Acetate of morphia	"	0.86 "	5 "
Sulphate of strychnia	"	0.75 "	10 "
Muriate of strychnia	"	0.83 "	8 "

—*Ibid.*

Cold Alcoholic Test for Albumen.—Dr. C. R. Drysdale reports from the Metropolitan Free Hospital (*The Boston Medical and Surgical Journal*, June 27; from *The Medical Press and Circular*), that he has tried the cold alcohol test for albumen recommended by Dr. Betz (*Memorabilien*, 1872), and that it has proved trustworthy in the cases tried by him. Dr. Betz remarks that boiling the urine is not always a sufficient plan when examinations are made in private practice, because albumen is not always thrown down by boiling. Also nitric acid is not certain in all cases. He mentions that a trustworthy and very easily obtained reagent is ordinary spirit as bought in shops. A portion of the urine is poured into a glass, and over it about an equal quantity of spirit, without allowing the two liquids to mingle. When albumen is present, the alcohol has a milky haze at the junction, and occasionally there are small nipples of albumen seen in the alcohol when the urine is very full of it. This process is so simple that it can always be made use of. According to Dr. Betz, this test will frequently show albumen when we are not inclined to think it exists on account of the absence of œdema, heaviness of the body (which is seen in children), foaming of the urine on micturition, scarlatina, or pneumonia. Dr. Drysdale has found the reaction in four cases of chronic albuminuria now under his care at the hospital.

The Influence of Pressure on Fermentation.—Mr. H. T. Brown (*The Academy*, June) has found that during alcoholic fermentation other gases besides carbonic anhydride are invariably given off. When malt ferments, he finds the gas unabsorbed by potash to be about $\frac{1}{3000}$ of the total gas evolved. When fermentation takes place under reduced atmospheric pressure, the proportion of evolved gas not absorbed by potash is found to be considerably augmented, the increase being mainly due to hydrogen; and the oxidation products, acetic acid and aldehyde, are likewise more abundant in the fermented liquid. The author considers that water is decomposed during fermentation, dissociation of the water-molecules being favored by decrease of atmospheric pressure.—*Phil. Med. Times.*

TOXICOLOGY.

POISONING BY CROTON OIL.

Dr. G. H. Snead reports the following case in the *Richmond Med. and Surg. Journal* of June, 1872. Mrs. S. took by mistake, the third morning after confinement, two teaspoonfuls each of croton and sweet oil. For the abdominal burning and drastic purging, which came on very shortly, the nurse gave milk freely.

Drs. Winn and Snead saw her two hours after the accident; her pulse was beating 150 to the minute and scarcely perceptible; the entire surface was bathed in a cold, clammy sweat; her countenance sunken, with copious watery, choleraic dejections every few minutes. They administered gum-arabic water freely, and afterwards white of egg every hour; also 25 drops of laudanum every half hour till 75 drops were taken. At twelve o'clock N., six hours after the taking of the oil, the bowels moving incessantly, pulse 160 and sinking, skin deathly cold, and physiognomy betraying great nervous prostration. Continued mucilaginous drinks and white of egg, also gave $\frac{1}{4}$ grain of opium and 2 grains acetate lead every two hours. Three o'clock P.M., vomiting of dark-greenish matter, pulse quivering, and skin intensely cold. Brandy was given and the pulse responded promptly to its use, and always flagging when stimulants were suspended beyond the usual time. Twelve o'clock at night, pulse 160 and very feeble, complexion livid, bowels still unchecked, Stimulants freely administered, mustard sinapisms covering extremities and stomach, friction over surface.

Second day, pulse same, bowels moved every half hour, mind clear, features contracted, lips purple, and surface cold. Twelve o'clock at night—bowels moved every half hour, pulse 150 and sinking, skin very cold and clammy, vomiting of dark-greenish matter, picking at the bed-clothes, and restless.

Third morning, pulse 140, bowels checked, skin warmer, with vomiting lessened. Ordered lime-water and milk, stimulants, blister to stomach, rubefacients to extremities. Eight o'clock P.M., skin more pleasant, vomiting relieved, pulse 120.

Fourth morning, skin much improved, bowels quiet, but little vomiting, physiognomy much more favorable, pulse 100.

Fifth morning, reaction thoroughly established.

Patient recovered without any inflammation or any other injurious consequence, except the shedding of her finger and toe nails almost entire, due to the suspension of vitality in the extremities during three days.

RAPID DEATH FROM STINGS OF BEES.

BY J. O. SANDERS, M.D., CARROLLTON, MISSISSIPPI.

April 18th I was called to see a patient stung by bees. Mr. S., an intelligent man, gave the following account: Louis ——, a negro, aged about 45, climbed a tree where bees had swarmed on a limb, for the purpose of hiving them, carrying with him a saw. As soon as the limb commenced falling, the bees arose *en masse* and covered his head and face. He descended immediately, and, as soon as he reached the ground, commenced running as fast as he could; ran around three sides of a yard, some two hundred steps, passed through an open gate, and fell to the ground. Mr. S. ran to him with a bottle of spts. camphor, and succeeded in forcing him to take one swallow; the patient protesting at the time against assistance, declaring that he would certainly die. After two or three irregular and partial respirations he expired. Mr. S. thinks it could not have been more than five minutes from the time he was attacked by the bees before he breathed his last. When I arrived, about an hour and a quarter after the accident, I could, on careful examination, find no signs of life. He was a vigorous, muscular man, and in perfect health, so far as I can learn. Was death due in this case to direct nervous shock, or to absorption of virus, or both?—*Medical News.*

Arsenic in Sulphate of Potash.—A circular has been issued by M. Bussy, Director of the Paris School of Pharmacy, stating that he has received information of a serious accident that has resulted through the sending out by a Paris wholesale house of sulphate of potash, containing a certain proportion of arseniate of potash, and recommending that no *pharmacien* should receive or deliver to the public any product that he may have received as sulphate of potash, unless he has previously ascertained that it is not contaminated with the arseniate.

POISONING BY DECAYED PLUMS.

Dr. Jno. Dougall reports the following very interesting case in the *Glasgow Medical Journal* for May, 1872:—J. M'I., a girl, aged eight

years, ate a quantity of decayed plums. Some hours afterwards she felt sick, and during the following night the sickness increased, accompanied by gastric pain. Next day her mother noticed a profuse papular eruption on most of the body, which she thought was small-pox. On the third day from this (3d Sept.) I saw her. On the face blood was oozing from twenty or more parts, the intervening surface consisting entirely of various-sized bullæ distended with white opaque serum. The hairy scalp seemed in a similar condition. There was severe double conjunctivitis, photophobia, and lachrymation. From both nostrils were dripping gelatinous strings of sherry-colored mucus. The lips and angles of the mouth were raw, fissured, and bleeding. Blood was oozing from the spongy and turgid gums. The tongue was swollen and slightly furred. Ptyalism was extreme; her chin, denuded of epidermis, was bathed in a mixture of saliva, mucus, and blood. On further examination, the whole body, except a few patches of intensely congested skin, was found covered with bullæ or denuded of epidermis. The inner portion of both thighs, the sulcus between the buttocks, the perinæum and vulva were one raw, bleeding surface, while from the vagina a profuse muco-sanguinolent discharge was issuing. Pulse 125, weak; bowels confined; urine scanty and high-colored. A laxative was prescribed and nourishing diet. On the following morning the surface of the face was completely raw, which apparently was the state of the entire scalp, as the lower parts of the hair were silted up by a brownish viscid matrix—the thickened contents of ruptured bullæ. On the body several of these had burst, leaving a raw surface on their site, while many new ones had arisen. The bowels were freely opened, the dejecta resembling tar, and the urine diluted porter. These black excreta and the other conditions continued for a week, by which time she was in reality "flayed alive," the body being one raw, red mass. The entire hair of the scalp, eyebrows and eyelashes were shed. The nails of the fingers and toes all came off, attached to portions of skin. She recovered slowly, and at present (six months after) is in good health. The hair and nails have grown. There is an opacity at the outer margin of the left cornea; a cicatrix under the left eye, and on each shoulder there are still two large eschars, much raised. None of the teeth came out, nor were any of the other children who had eaten the plums known to be affected.

HYDRATE OF CHLORAL AND BROMIDE OF POTASSIUM IN STRYCHNIA POISONING.

Mr. E., an adult, took one grain of strychnia, and was seen, fifty minutes afterwards, by Dr. E. H. Coover, who used the following mixture:—

Hydrate of chloral, ℥ ss.; Bromide of potassium, ʒ iij.; Water, ℥ iss.; and Syrup of orange, ℥ iiss.

The patient was in violent tetanoid convulsions. The quantity of the mixture used is not definitely stated; but in one minute the symptoms were all relieved. A good recovery was effected.

BROMIDE OF POTASSIUM IN POISONING BY STRYCHNIA.

BY C. B. BATES, M.D., SANTA BARBARA.

J. D., aged 22, had taken about ten grains of strychnia on an empty stomach. Upon my arrival, about half an hour afterwards, I found him in a most violent tetanic convulsion, and at once forced him to swallow a dose of tartar emetic and ipecac, which after a time operated well. During the whole of this time convulsions were recurring every few minutes, and I gave him one grain of sulphate of morphia with about forty of bromide of potassium. Soon the paroxysms decreased in violence, and the intervals of rest became longer. The bromide of potassium, in doses of forty grains, was repeated every hour until he had taken half an ounce, when he was out of danger, and all that remained of the muscular spasm was an occasional jerking of the muscles of the lower jaw.—*Pacific Med. and Surg. Journal.*

POISONING BY CAMPHOR.

Dr. Jos. R. Beck (*St. Louis Med. and Surg. Journal*) reports two cases of camphor poisoning:—

Case I. Upon arriving at the house I found the boy lying upon his mother's lap, in strong convulsions. The boy was three years of age, and well grown. His scalp was intensely hot, and the appearance of his face indicated severe cerebral disturbance. The extremities were quite cold, the abdomen retracted, and the patient apparently moribund. Accidentally my nose was brought into the immediate vicinity of the child's mouth, when I at once perceived the peculiar odor of camphor. A few short and well-directed inquiries developed the following history:—About ten o'clock of the morning of that day the mother had given him a piece of camphor the size of an English marrowfat pea, and this the child chewed and swallowed. During the remainder of the day the child seemed as lively as usual, until about four o'clock P.M., when, without any premonitory symptoms, he fell over in a convulsion, which continued without intermission until my arrival, at five o'clock.

As the child was entirely unable to swallow, he was ordered an enema of two ounces of whiskey, suspended in two ounces of thin starch, to be repeated in two hours, if necessary; also bags of pounded ice to the scalp until the convulsion ceased. When I saw the patient again at 7.30 P.M. he had entirely recovered, and the second enema was not required.

CASE SECOND.—About six o'clock in the evening of the 30th of November, 1871, I was sent for to see R. J. L———, forty-two years, stout, healthy, and robust, who was then, and had been for nearly ten hours prior to that time, suffering from a violent abdominal pain, similar to that of hepatic colic. He was at this time very weak; in fact so much prostrated, that his voice, usually a deep bass, had sunk to a husky whisper, and a cold clammy perspiration covered his face and hands with large beaded drops. He talked most of the time in a low, muttering, delirious way. His extremities were cold, his abdomen retracted, and these symptoms, taken in conjunction with the looseness of the bowels for some hours past, and the haggard, anxious look upon the face, called to my mind Asiatic cholera.

Upon inquiry I learned that he had taken a tablespoonful of a solution of camphor from a bottle, which at that time stood upon a table in the sick-room, for colicky pains. This seemed to make him feel some better for a few minutes, but the pain soon set in sharp, decided, and more violent than ever. In addition to this, violent vomiting also began, and as the dose was repeated twice during the following four hours, he became more exhausted than ever. Upon making an examination of the solution in the bottle, I found it to consist of a *strong concentrated solution in alcohol.*

The treatment in this case consisted of sinapisms to the extremities, and an enema of thin starch, three ounces, whiskey four ounces, ammon. carb. ten grains; to be repeated in four hours. The stomach being so irritable as to reject any and all substances, whether food or medicine, the enemas were kept up for forty-eight hours, reducing the amount of whiskey half an ounce at each injection. The patient began to convalesce slowly, and it was not until the twelfth of December that he was discharged from treatment. He shortly afterwards left the city, and I have not heard from him since.

AMERICAN HELENIUM.

DR. J. M. BIGELOW calls attention to the poisonous properties of some of the American plants of the genus Helenium, especially H. tenuifolium, Nutt.

He quotes Dr. Galloway, of Kosciusko, Miss., as saying:—

"The first effect that is observable after a horse or mule has swal-

lowed a bit of the weed, is a twitching of the eyes and a dodging of the head, as if to avoid some imaginary blow. This is followed by twitchings in other parts of the body, which increase in frequency and severity until they pass into general convulsions of such violence as to throw the animal upon the ground. The spasms recur at intervals of a few minutes, and in most cases terminate in the death of the animal, unless timely remedies are employed. The convulsions are of a tonic character, and on their cessation the animal breaks out in a very profuse perspiration. In the intervals between the spasms the animal will eat greedily. The remedy consists in the prompt administration of lard or oil in some form. The first effects are observed within fifteen or twenty minutes after the weed has been swallowed. The active properties seem to reside chiefly in the top or bloom of the plant. I have seen sheep eat with seeming impunity the young plant. On the other hand, cattle are not unfrequently poisoned in the late fall or winter by eating the dried weed, after it has been killed by the frost. It is very rarely that stock raised here will bite it, even when hitched within its reach, unless very hungry and restless. Horses raised in Tennessee, Kentucky, or Texas are often poisoned by it. A few years ago a gentleman passed through this place with a drove of ponies, about twenty-five in number, from Texas. He arrived about noon, and remained until four o'clock P.M., when he started forward for a watering-place, five miles distant. The animals meanwhile, in feeding in the open lots and grounds around the town, had picked up so much of the sneeze-weed that eleven of them died before reaching the watering-place.

"A very small quantity of the sneeze-weed suffices to cause death in an animal. Its effects on the human economy appear to be equally deleterious. A few years ago a neighbor of mine had some flour prepared from wheat that had been threshed in a lot in which the sneeze-weed grew. A biscuit made from this flour, and eaten without butter, produced in a lady general nervous twitching. Two other members of the family partook of the biscuit, but ate freely of butter with it, and escaped any unpleasant symptoms. Four negroes eating of the same biscuit without butter were all poisoned. They presented the same phenomena of spasmodic action of the muscles, accompanied with more or less delirium and loss of consciousness. A small sack of the flour was sent by this gentleman to his sons in the army, before its poisonous character had appeared, and all who ate of it were affected in a similar manner."

Dr. Lewis, also of Kosciusko, writes: "In 1866 a squad of Federal cavalry was stationed at Goodman, Miss. Many of their horses died from eating sneeze-weed; some recovered by the use of oil."—*Detroit Review of Medicine.*

INJECTION OF AMMONIA INTO THE VEINS AS A REMEDY IN SNAKE-POISONING.

Through the courtesy of E. C. Bayley, Esq., Secretary to the Government of India, Home Department, we have had an opportunity of perusing a correspondence which has passed between Professor G. B. Halford, of Melbourne, and Dr. Fayrer, on the efficacy of injecting liquor ammoniæ into the veins, as a remedy for snake-poisoning. Dr. Fayrer asserts that his frequently repeated experiments on the dog prove that in really severe and effectual bites this plan of treatment does no good, and that injecting any other stimulant would be of equal avail in cases where stimulation might be beneficial. Professor Halford appeals to his experience of human beings, who had been bitten by the tiger-snake, recovering under this plan of treatment, and says that experience gained by experiments on dogs may not be true with regard to men. There can be no denying that men have recovered after having been bitten and subsequently had ammonia injected into the veins, but so have men who have been bitten and had no ammonia injected. The matter is one for discriminating and unbiassed experiment and observation. Doctors are not remarkable for concord regarding questions less difficult of satisfactory solution than this, and the only way of settling this issue is to take every opportunity of putting the vaunted remedy to trial, carefully study the case, and record it. Both Fayrer and Halford agree in thinking that ammonia is a good stimulant, and should be given in all cases of snake-poisoning. The question is—is Halford's plan of injecting it into the veins more effective than exhibiting it by the mouth or subcutaneously injecting it? We trust that those of our readers to whom an opportunity of putting the practice to trial offers may do so and report the result. It is always difficult in any case to say what might have happened had a certain thing been done or not done; but accurately recorded clinical experience is the only safe ground of conjecture, and the only sound basis of assertion in such matters. The quantity of liquor ammoniæ recommended for injections of this kind is 30 minims of the liquor ammoniæ, B. P., specific gravity .959.

The treatment is said to be equally effective in asthenia, arising from other poisons or causes; we have read of its sucessful employment in a case of poisoning by chlorodyne.—*Indian Med. Gazette*, June 1, 1872.

Hypodermic injections of Ammonia.—Dr. Zuelzer, of Berlin, has practised injections of ammonia with very good results in cases of fevers, when the profound asthenic symptoms threaten speedy dissolution. He injects from twenty to thirty drops of the solution, divided

into four injections, one in each limb. In no case have any grave accidents occurred. In many cases the results were both speedy and permanent. The formula used was:—

Take of Oil of Aniseed..... 1 part.
Alcohol (at 85°).....24 parts.
Liquid ammonia (liq. ammon. fort.?)... 5 "

Mix.

He commends most highly this treatment in all cases of collapse or depression threatening death, especially when the cause is a transient one—as in poisoning, pernicious chills, etc.—*Lyon Médical—Revue de Thérap. Med.-Chir.*, July 1, 1872.

ASSERTED ANTIDOTAL POWER OF CHLORAL IN STRYCHNIA POISONING.

At the séance of the French Academy of June 3, M. Orr offered a communication upon Liebreich's paper on the antagonism between strychnia and chloral. In his essay M. Orr stated that he had experimentally proven that the dose of chloral which Liebreich had relied on as being mortal to rabbits was very often not so; that the same was true of strychnia, and that consequently the investigation of Liebreich was not to be relied on as proving the respective antidotal powers of the drugs.

At a later séance M. Orr stated that further experiments had shown him that if a certainly fatal dose of chloral was given to a rabbit, the hypodermic injection of strychnia did not affect the result. He, however, stated that his own investigations were not complete, and that he was not ready to give a definite result.—*Gazette Médicale*, July 6, 1872.

POST-MORTEM DELIVERY.

The *Medical Press and Circular* of April 3 contains two letters by Drs. Swayne, of Carrick-on-Shannon, and Lanigan, of Ballymahon, describing two instances of *post-mortem* expulsion of the fœtus through the agency of gaseous distention of abdomen. Dr. Swayne states that he "never heard or read of a similar instance." We suspect that the incident is not an uncommon one in Indian medico-legal practice. We can recall at least one instance of such an occurrence. The body of a pregnant woman is despatched from a distant part of a district, and wrapped up rather loosely in a coarse cloth and bamboo matting. On arrival at the Sudder station the civil surgeon finds it semi-putrid, eyes bursting, limbs widely apart, and abdomen swollen, and hard as a

drum. On removing the coverings, a fœtus is found between the thighs, and the uterus not unfrequently prolapsed, while the bystanders declare that when the body was started nothing of the kind was observed. Dr. J. H. Aveling gives notes, in *The Lancet* of April 27, of six instances of *post-mortem* delivery. In five of these the delivery took place after the women had been committed to their coffins and graves. These examples are drawn from old records, but they have an air of circumstantiality and truth about them. In one instance the infant was extracted alive from the coffin. It would be very interesting and medico-legally important to find, as we have hinted is probable, that what is considered in England a curious and rare phenomenon, is in India a common and familiar circumstance. In *The Indian Medical Gazette* for August, 1867, Dr. R. F. Hutchinson, then civil surgeon of Patna, has recorded a good case of *post-mortem* parturition, which he considered unique. The medico-legal relations of effects produced by putrefaction can, perhaps, be better studied in India than in any other country in the world; because the conditions causing it are ever present in varying degrees, and the instances of changes of all kinds and degrees due to the influence of the heat and moisture abound. We have seen the viscera of the abdomen occupying the cavity of the thorax, into which they had been thrust through a rent in the diaphragm, of whose *post-mortem* causation there could be no reasonable doubt.—*Indian Med. Gazette*, June.

POISONING BY VERATRUM ALBUM.

In an able and elaborate paper in the New York *Med. Record* Dr. Peugnet reports the following case of poisoning.

A married lady took by mistake half an ounce of the homœopathic mother tincture of veratrum album, equivalent, according to subsequent analysis, to $\frac{3}{4}$ grain. Immediately after taking it she felt soothed and quiet, having been exceedingly nervous before.

At 10 P.M. her hands and feet became numb, a sensation which gradually extended over the whole body. She attempted to rise, but had two attacks of syncope in rapid succession; was taken immediately afterwards with violent vomiting.

10.30 P.M.—I found her pulseless, heart pulsating feebly and irregularly; resp. twenty-two and regular; eyes fixed and staring; pupils dilated; almost total loss of sight; the body covered with a cold and clammy perspiration; complete anæsthesia of the skin; voice as clear and as strong as in the collapse of cholera; lips of a bright carmine; mind clear, calm, and collected; thought that she was dying; vomiting

and retching incessantly; the fluid ejected was viscid, glairy mucus, of a greenish hue. No purging. I gave her an enema of brandy and water, three ounces of each, and thirty drops of ammonia, followed in a short time by a second, both of which were retained; then rubbed her limbs with dry mustard; applied mustard plasters to the epigastrium; then administered a third enema, which was forcibly retained.

Violent purging accompanied with severe tenesmus set in shortly afterwards, and small quantities of brandy were given by the mouth at short intervals, and ammonia to the nostrils.

Aug. 5th, 1 A.M.—Pulse perceptible for the first time, 38, feeble and intermittent; anæsthesia of the skin continues; vomiting not as violent, purging incessantly, accompanied with tenesmus; can now see distinctly. 3 A.M.—Pulse 44; anæsthesia continues; temperature normal; intense thirst. 10 A.M.—Pulse 96; vomiting occasionally; salivated and bloody stools frequent; marked pain in left iliac region, extending to left hypochondrium, increased by pressure.

Aug. 6th, 6 A.M.—Pulse 100; passed a restless night; tympanitis, marked tenderness of left iliac region; nausea, vomiting at intervals; tenesmus, with bloody stools every hour; pupils normal; anæsthesia persistent; thirst intense.

Aug. 8th, 6.30 A.M.—Pulse 105; tongue dry, furred, and brown; gums inflamed and tender, bleeding freely at intervals; aphthous ulceration of the palate; breath offensive; ptyalism profuse; nausea persistent; vomiting occasionally; stools frequent and bloody; occasional exacerbation of pain in left iliac region and left hypochondrium, increased by pressure.

Aug. 10th.—Pulse 105; tongue furred; gums ulcerated; nausea, but no vomiting; purging not as frequent; stools no longer bloody; anæsthesia of the lower extremities; a profuse flow of blood from the uterus came on during the night, although the menses were not due until the 22d.

Aug. 11th.—Pulse 94; marked improvement.

Aug. 14th.—I left her, as I supposed, convalescing; she felt comparatively well, diarrhœa almost checked; occasional anæsthesia of the upper and lower extremities. On the 16th sat out of doors; on the 17th took a ride; on the 18th another; was taken that night with violent tenesmus and catharsis; stools bloody; also slight nausea.

Aug. 22d, 12.15 A.M.—Pulse 102; tongue furred and brown, edges red, papillæ raised; tympanitis, tenesmus, pain in left iliac region, extending to left hypochondrium, increased by pressure; frequent bloody stools and nausea.

Aug. 25th.—Left her improving, with directions for her removal to the city on Monday, the 28th, as I did not deem it prudent for her to re-

main longer, owing to the marked insalubrity of the place, caused by miasm and defective drainage; as there then were in the same wing of the hotel two cases of dysentery, one of which was typho-malarial. The treatment, as suggested, was the occasional administration of Squibb's liquor opii comp.

Aug. 29th.—Arrived home last night; passed an uncomfortable night; pulse 100; recurrence of diarrhœa; evacuations very offensive, black, also some mucus, streaked with blood; nausea, vomited twice viscid greenish mucus streaked with blood; tongue furred. Ordered enema of liquor ferri persulphatis, 20 drops in ℥iv. of water every four hours, which were discontinued after the third on account of the pain and violent hysteria; five drops of the liquor were administered every four hours instead, also a pill containing argenti nitras $\frac{1}{12}$ gr. and ext. opii ¼ gr. every alternate four hours.

Sept. 2d.—Sanguineous stools having ceased, pepsine gr. iij. and bismuth trisnitras gr. xv. were given every two hours; quiniæ sulphatis gr. ij. every fourth hour; paregoric whenever necessary to allay tenesmus.

Sept. 8th.—Pulse 84; tongue smooth and clear; pain in left iliac region, extending upwards; from fourteen to sixteen stools in twenty-four hours, dark and small, accompanied with tenesmus. Morphiæ sulphas $\frac{1}{16}$ gr. added to pepsine and bismuth.

Sept. 17th.—Pulse 102; tongue furred, dry and brown, edges red, papillæ raised; no improvement, as the morphine was evidently acting as a nervous irritant; discontinued it, and substituted salicine gr. v. every four hours, discontinuing all other remedies.

Sept. 22d.—Marked improvement; lying on lounge.

Sept. 25th.—Evacuations very frequent, containing mucus streaked with blood; insisted upon giving an enema of Oj. of warm water, with long flexible tube, which she had heretofore strenuously objected to. Considerable mucus, streaked with blood, came away, also shreds of mucous membrane, and but a trace of fæcal matter; the pain from the distention of the intestine was intense; ordered a suppository of ext. opii aq. and argenti nitras āā gr. ¼ every four hours.

Sept. 26th.—Feels more comfortable; fewer evacuations; administered an enema of warm water Ojss.; it was followed by a discharge of mucus streaked with blood, shreds of mucous membrane, and but little fæcal matter.

Sept. 30th.—Steadily gaining; a fourth enema administered, followed by the first well-formed and perfectly healthy evacuation, with the exception of its extreme attenuation, evidently caused by a contraction of the colon.

From this time forward the recovery was rapid: with the exception

of insomnia, nervousness, tremor of the limbs, uncertainty of gait when the first attempts to walk were made; the only nervous symptoms which manifested themselves during the progress of the case were the loss of sight, paralysis of the recti muscles of the eye, and the anæsthesia; this last symptom persisted until the middle of September, migratory in its character, recurring principally on the anterior surface of the forearm and on the thigh, following the course of the anterior crural nerves. The urine was not examined at first, but in subsequent examinations an abundance of amorphous matter with a large amount of the crystals of oxalate of lime were found.

The only remedy which effectually controlled the insomnia was the hydrate of chloral in ten-grain doses.

The digestion was so much impaired, that milk gruels, beef-tea, broths, steaks, and confections of raw beef had to be successively abandoned; game, chicken, fish, and bread being exclusively relied upon.

The emaciation, at first very great, rapidly disappeared. On the 31st of January following her health was perfect, and the fæcal evacuations had entirely recovered their natural form and size.

Wolf-Bite.—In the *Indian Med. Gazette* of April 1 is detailed a case in which the larynx of a boy was opened by a wolf taking him by the throat. Recovery.

Leopard-Bite.—In the *Indian Med. Gazette* of April 1 is detailed the case of a man who escaped from a leopard after being seized by the throat. A terrible gaping wound was left, bounded superiorly by the hyoid bone and the tissues attached to it, inferiorly by the larynx, posteriorly by the lacerated open pharynx, and laterally by the carotids, both of which escaped only by a hair's breadth. Six weeks after the reception of the injury the man was doing well, and the œsophageal opening showed a tendency to contract.

Deaths from Snake-bite.—It is stated, says the *Homeward Mail*, that in the Tanjore district, no fewer than nineteen persons in every 100,000 die annually from snake-bite. Taking the population according to the census, this would give nearly 330 deaths per annum in that district alone; and assuming the rate of mortality over the whole presidency of Madras to be only half that which prevails in the Tanjore district, and the population to be 30,000,000, we get the startling total of nearly 3,000 people annually dying from snake-bites.

Deaths from Chloroform.—On June 8 an inquest was held at King's College Hospital on the body of William Lyon, aged 36. It was considered necessary to perform an operation on the jaw, and he was placed under the influence of chloroform, and two minutes after

its administration he expired. A verdict that deceased died from paralysis of the heart, caused by chloroform, was returned.

The death of a patient while on the operating-table, under the influence of chloroform, occurred on the 27th of last month in the practice of the eminent Vienna surgeon, Billroth.—*British Medical Journal*, June 15.

Tests for Detecting Strychnia.—The *Popular Science Review* states that Dr. Filhol, in a recent paper on this subject, maintains that strychnia should, in cases of poisoning, be obtained in the solid state; the alkalinity of its solution should be ascertained, as well as its intensely bitter taste; its behavior with chlorine, and its blue coloration under the influence of sulphuric acid and oxidizing substances should also be seen; while, lastly, as a very delicate reaction, Dr. Filhol observes that with chloride of gold, strychnia (in solution) yields immediately a crystalline precipitate, which, although slowly, is yet distinctly formed in solutions containing one-tenth of a milligramme of the alkaloid. This precipitate and that formed by chlorine are at once dissolved by concentrated sulphuric acid, and chromic acid being added, the well-known blue coloration that strychnia yields with this last reagent is produced. The presence of alcohol in liquids to be tested for strychnia should be avoided.—*Lancet*, April 27, 1872.

POISONOUS COSMETICS.

Eau de Cythère: 4 per ct. chloride lead, 8 per ct. hyposulphite of soda, 88 per ct. water. (Wittstein.)

Eau de Fées: Hyposulphite of lead, 1½, hyposulphite of soda, 3, glycerine, 7, water, 88 parts. (Hagar and Jacobsen.)

Kalydon's and Gowland's Cosmetic Wash. Bitter almonds, 1 ounce; bichloride of mercury (corrosive sublimate), 8 grains; rosewater, 1 pound. (Dr. Ehrhardt.)

Pommade Tannique: Perfumed lard, 65, acetate of lead, 25, flowers of sulphur, 7 parts.

Damenpulver (Ladies' Powder): Pulverized talc, 4, carbonate of lead, 1 part. (J. Pohlmann, in Wien.)

Florida Water: Acetate of lead, 50, flowers of sulphur, 20, distilled water, 1,000 parts. (F. Eymæl.)

Bahama Water. According to Reveil, similar to Florida Water, but perfumed with aniseed oil.—T. M. B., in *American Chemist*, August, 1871.

PRESCRIPTIONS AND FORMULAS.

Cod-Liver Oil Emulsion.

Take of—

Tragacanth..... 8 parts.
Cold water..... ...500 "

Make into a mucilage.

This, by being simply agitated, makes with cod-liver in all proportions a homogeneous mixture, which may be rendered more agreeable by the addition of 4 parts of alcohol with a little oil of bitter almonds and a trace of oil of cinnamon to every 30 parts.—*Journ de Pharm.*, April, 1872.

Dust-Powder for Infants.

Take of Starch..... ℥ j.
Oxide of zinc..... ʒ ij.

S. Use with a brush.

Solution for Disinfecting Sponges.

Take of Permanganate of potash 4 parts.
Water.....100 "

Impregnate the sponge in this, and afterwards wash in a quart of a solution of sulphurous acid (25 parts to 100), afterwards wash plentifully with water.

According to M. Leriche, foul purulent sponges so treated regain their pure, marine odor, their elasticity, and become softer and whiter.—*L' Union Pharmaceutique*, May, 1872.

Syrup of Eucalyptus.

Take of Leaves of eucalyptus..100 grms.
Boiling water..... 1 litre.

Infuse for six hours and express; allow to stand and deposit; decant the liquid, and to it add 190 parts (by weight) of sugar for every 100 parts, dissolving by gentle heat.—*L' Union Pharmaceutique*, June, 1872.

Powder Stomachique.

Take of Powdered rhubarb... 3 grms.
Prepared chalk..... 3 "
Powdered opium....25 centigr.

Mix and divide into 12 packets.

One powder half an hour after meals.—*L' Union Médicale.*

Syrup of Chloroform.

Take of Pure chloroform..... 5 parts.
Rectified alcohol..... 24 "
Simple syrup.....300 "

Mix the chloroform and alcohol and add the syrup and shake.

Dose. A tablespoonful.—*L' Union Médicale.*

Delfraissé Revulsive Liniment.

Take of Oil of turpentine.....30 parts.
Tartar emetic..... 4 "

Mix.

Frictions 3 or 4 times a day in rheumatic and neuralgic pains, until an eruption is induced.—*L' Union Pharmaceut.*

Formulas for Hypodermic Use.

Crystallized Digitalin.

Take of—

Digitaline (crystal.)..1 centigr.
Alcohol at 95°.....5 cubic centigr.

Dissolve and add—

Distilled water.....5 cubic centigr.

One cubic centimetre contains 1 milligramme of digitalin.

Codeia.

Take of—

Crystallized codeia.....	1 grm.
Dilute sulphuric acid (10th).	150 grms.
Distilled water with glycerine (5 parts of latter to 100) enough to make	100 cubic centimetres.

—Adrian—*L'Abeille Médicale.*

Injections of Ergot in Maladies of the Uterus.

Dr. Swideski, in a recent memoir, collects about forty cases in which subcutaneous injections of ergot were employed in various diseases of the womb, especially chronic metritis, in some displacements and in metrorrhagia; its action was in every case prompt and certain. The author used at first the solution of Beaujean, and observes that, as the solution contains a larger quantity of alcohol, it acts more promptly, but excites greater pain, and frequently produces ulcers. The solutions employed are:—

1.	Extr. aqu. secal. cornut.....	2 grms.
	Spir. vin. rectif.,	
	Glycerina, āā.....	7 "
2.	Extr. aqu. secal. cor.....	2 grms.
	Spt. vin. rectif.....	5 "
	Glycerina.....	12 "
3.	Extr. aqu. secal. cor.,	
	Spt. vin. rectif., āā.....	2 grms.
	Glycerina.....	12 "
4.	Extr. aqu. secal. cor.....	1 grms.
	Spt. vin. rectif.....	1, "
	Glycerina.....	3 "
	Aq. destil.....	4 "

In cases of chronic ulceration he employs solutions 3 and 4; where prompt action is needed, Nos. 1 and 2; the former (Nos. 3 and 4) act in from one to two hours, the latter excite painful contractions in about half an hour. In some of the deviations of the womb the author reports the favorable results of the use of subcutaneous injections of ergot; he observes, however, that it is of no benefit if the case be of too long standing, if the uterus present considerable inflammation, or adhere to other organs in the vicinity. In chronic metritis the injections are employed every two or three days, and even where a complete cure cannot be hoped for, the leucorrhœa speedily ceases, and the uterus returns to its place.—*Gazetta Med. Ital. Lombard.*, 1872, No. 4.

Goldsmith's Solution of Bromine.

Bromide of potassium.	160 grains.
Bromine.....	ʒ j.
Water.....	℥ vij.

Mix. The above is the formula used by Dr. Goldsmith.—*Druggists' Circular.*

Snow Catarrh Powders.

℞ Sulphate of potassa,
Chlorate of potassa,
Gum acacia, equal parts of each and mix.

Remedy for Sore Lids, Breasts, etc.

℞	Glycer-amyl.....	2 drachms.
	Bromo-chloral.....	5 "

Mix.—*Druggists' Circular.*

Remedy for Styes.

℞	Glycerine.....	½ ounce.
	Bromo-chloral.....	10 ounces.
	Rose-water.....	1 drachm.
	Brandy.....	½ "

Mix. —*Druggists' Circular.*

Compound Elixir of Mandrake.

℞	Mandrake,	
	Senna leaves, āā....	64 scruples.
	Jalap.....	32 "
	Cloves,	
	Cinnamon, āā.....	1 scruple.
	Cardamom,	
	Aniseed, āā.....	2 drachms.
	Alcohol.....	5 ounces.
	Water.....	9 "
	Simple syrup.....	3 "

Bruise the roots, leaves, and aromatics,

and moisten with the alcohol and water (previously mixed); pack into a percolator, and pour the alcohol and water on it until 13 fluid ounces have passed; mix this with the syrup, filter, and add on the filter a sufficient quantity of water to make it measure one pint. Each fluid drachm contains 10 grains of mandrake, 10 grains of senna, 5 grains of jalap.—*Druggists' Circular.*

Bay Rum.

1. Formula much employed in the West Indies.

℞ Fol. myrti acriæ.....	2 pounds.
Sem. cardamomi.....	½ pound.
Cassiæ cinnamomi....	2 ounces.
Caryophylli.....1½	"
Rum.....	9 quarts.

Distil 1½ gallons.

2. Probably the best Imitation.

℞ Oil of bay.....10	fl. drachms.
" of pimento... 1	fl. drachm.
Æth. acet..... 2	fl. ounces.
Alcohol..... 3	gallons.
Water..... 2½	"

Mix, and filter after a fortnight.

3. ℞ Olei pimentæ.....	½ ounce.
" caryophylli..15	drops.
" macis.....15	"
" roris marini..14	"
Alcohol.....	8 ounces.

Agitate thoroughly and add

New rum.....	8 ounces.
Tinct. of santal,	
" of curcum.	q. s.

to give a good color. After standing several days, to be filtered.—*Druggists' Circular.*

Syrupus Cimicifugæ Comp.

Take of Black snakeroot, in fine powder.....	℥ i.
Senega root in fine powder.....	℥ ss.
Ipecac root, in fine powder.....	ʒ ij.
Calabria licorice, in fine powder.....	ʒ ij.
Syr. wild cherry bark, U. S. P.....	f ℥ vj.

Dissolve the licorice in eight fluid ounces of boiling water; when cold add to it eight fluid ounces of alcohol; moisten the actæa, senega, and ipecac with one fluid ounce of the mixture, and pack firmly in a cylindrical percolator; pour upon it the alcoholic mixture; after the liquid has disappeared from the top, displace with water sufficient to make the percolate measure one pint; evaporate this to six fluid ounces, boil and filter, adding sufficient water through the filter to make the liquid measure twelve fluid ounces, with twenty-three troy ounces of white sugar, make into a syrup, and when cold add the syrup wild cherry bark.—*Druggists' Circular.*

Elixir of Pepsin, Bismuth, and Strychnia.

℞ Pepsin (Hawley's)..256	grains.
Bismuth citrat..... 64	"
Strychniæ.. 1	grain.
Aq. flor. aurantii... 6	ounces.
Spirit. vini, deod... 2	"
Aquæ..... 4	"
Glycerinæ (pure)... 2	"
Syrupi..... 2	"

Triturate the pepsin with the water and glycerine and filter; dissolve the bismuth in two ounces of orange flower water with a few drops of aqua ammoniæ. Dissolve the strychnia with a few drops of acetic acid. Add the bismuth solution to the pepsin, then the remainder of the fluids, and finally the solution of strychnia. Each fluid ounce contains: pepsin, sixteen grains; citrate of bismuth, four grains; strychnia, one-sixteenth of a grain.—*Druggists' Circular.*

Veratria as a Parasiticide.

Dr. Eugène Peugnet recommends, in *The American Journal of Syphilography and Dermatology* for July, the application of the following lotion in cases of tinea versicolor, favus, and aspergillus:—℞ Veratriæ (sabadillæ), gr. iij.; acidi

acet. dil., ♏ x.; aq. rosa., glycerinæ, ää ℥ ss. M. The tinctures of veratrum viride and veratrum album also possess parasiticide properties.

Pulvis Glycyrrhizæ Comp., or Pulvis Pectoralis Kurellæ,

According to the *Prussian Pharmacopœia*, is prepared as follows:

℞ Senna leaves, powdered,
Licorice root, powdered, ää.. ℥ vj.
Fennel seeds, powdered,
Pure sulphur, powdered, ää.. ℥ iij.
Refined sugar, powdered..... ℥ xviij.
Mix. —*Druggists' Circular.*

Infantile Paralysis.

Prof. Gross ordered at the clinic for a pale, diseased stunted child suffering from infantile paralysis:—

℞ Tinct. ferri chloridi, f ℥ j.
Tinct. nucis vomicæ, f ʒ ij.
Hydrargyri chlorid. corrosiv., gr. iv. M.

S. Take five drops three times daily in a tablespoonful of sweetened water.

℞ Ung. hydrargyri, ʒ iij.
Cerat. simplicis, ʒ v.
Veratriæ, gr. vj. M.

S. Put a piece the size of a marrowfat pea, twice a day, over the entire spine and along the back of the limbs.

Apply the ointment gently at first, until the parts become accustomed to its use. Wash the child every day with tepid water containing a tablespoonful of common salt to the quart. After bathing, wring the end of a towel out of cold water, and with it strike the entire surface of the body quite smartly, until the skin is reddened. This treatment to be continued for a month; at the end of which time his mother was directed to bring the child back.

New Method for Preparing Lin. Sapo.

J. A. Graefle (*Am. Jour. Pharm.*) proposes the following modification of the U. S. process, yielding a clear liniment in the course of a few minutes:—

Dry White Castile Soap (finely grated)..... ℥ iv.
Camphor..... ℥ ij.
Oil of Rosemary..... fl ℥ ss.
Water..... fl ℥ vj.
Alcohol..... fl ℥ xxx.

Put the soap in a half-gallon bottle, pour on a pint of alcohol, shake well, add the water and shake again till the soap is dissolved.

Dissolve the camphor and oil in the remaining alcohol, mix the two solutions and filter.

Balsam of Honey.

(1) Balsam of tolu.....1 pound.
Honey.....1 "
Alcohol.....1½ gallons.
Or,
(2) Balsam of tolu.....2 ounces.
Styrax.....2 "
Opium..... ½ drachm.
Honey.....8 ounces.
Alcohol.....2 pints.

Oil of Spike.

Barbadoes tar.....2 pints.
Ol. terebinth.....1 pint.
Ol. lini.....1 "
Ol. lavand. exot.....2 oz.

British Oil.

Ol. terebinth.....1 pint.
Ol. lini.....1 "
Barbadoes tar.....1 "
Crude petroleum.....8 oz.
Ol. succini (or juniper).....1 oz.
—M. R. Barker, *Canad. Pharmacist.*

Other receipts:—

Oil of Spike.

Barbadoes tar.....2½ pints.
Spirits turpentine.....4 "
Sulphuric acid.....3 ounces.

British Oil.

Barbadoes tar.....2 pints.
Oil of amber.....1 ounce.
Spirits turpentine.....6 pints.
—*Canada Pharmacist.*

Syrupus Cubebæ.

C. L. Mitchell (*Am. Jour. Pharm.*) proposes the following formulæ for the preparation of a syrup of cubebs which has been found an elegant as well as efficacious remedy in diseases of the throat and lungs:—

Fld. ext. cubebs.....f ℥ ij.
Carb. magnesia.....f ℥ ss.
Sugar powd..... ℥ xij.
Orange-flower water.....f ℥ ij.
Water.....q. s.
Ess. oil almonds.....gtt. j.

Rub up the fld. ext. with the carb. magnesia and then add ℥ ij. of the powd. sugar in small portions. When thoroughly mixed add gradually first the orange-flower water and then f ℥ vij. water, constantly triturating the mixture until the sugar is dissolved. Filter and add q. s. water through the filter to measure f ℥ xj., in which dissolve the balance of the sugar without heat. Add the oil almonds cut in a little alcohol, and again filter, adding, if necessary, q. s. water through the filter to measure 1 pt. The dose of this syrup is f ℥ j–iv., and it may be given in even larger doses if desired. It may also be made by using the officinal oleoresin in the proper proportion in place of the fluid extract.

Pyrosis.

Dr. Thompson (*Amer. Pract.*) says:—

In the treatment of pyrosis, or water-brash, the antacids are to be resorted to, particularly the saccharated solution of lime-water and milk—

℞ Liquoris calcis saccharati..f ℥ i–iv.
Lactis, ad.....f ℥ iv. M.

It may be well to remember that the addition of fifteen grains of bicarbonate of soda to the quart of milk not only prevents it from turning sour, but renders it more digestible.

Antacid for Heartburn.

℞ Potassæ subcarbonat.... } āā ℥ ij.
Spirit. lavand. comp.... }
Sacchar. alb..... ℥ j.
Tinct. opii.....gtt. xxx.
Aquæ..... ℥ iiiss.
M. S. Tablespoonful as required.
—Dr. B. S. Thompson, *American Practitioner.*

Gonorrhœal Ophthalmia.

The following is the treatment of a very severe case of gonorrhœal ophthalmia adopted in the Meath Hospital, Dublin, by Mr. L. H. Ormsby:—

On March 25th the patient was put to bed and put on low diet, all stimulants stopped, and the emetic cathartic mixture ordered, as he was a plethoric, strong young fellow, containing

℞ Antimonii tartrati.....gr. j.;
Sulph. magnesia..... ℥ j.;
Aquæ.....ad ℥ viij.

Two tablespoonfuls of this mixture every third hour, until the bowels are well moved.

Two leeches were ordered to be applied on the internal and external canthus of the eye, and a solution of nitrate of silver containing two grains to the ounce, to be injected into the eye every hour. A belladonna lotion to be applied to the eyelid to soothe the pain, and directions given to the patient to lie on the affected side to prevent any of the gonorrhœal matter flowing across the bridge of the nose into the other eye; the chemosed portion of conjunctiva was scarified by Mr. Ormsby on two occasions with marked benefit, and in the course of the case the leeches were repeated with great effect. The palpebral conjunctiva was painted with a ten-grain solution of nitrate of silver to the ounce every twenty-four hours. On the 9th of April the inflammation was at its highest, the cornea was glazed, and the patient could not see anything with

it; in about a week longer, signs of the inflammation subsiding were evident, he was then ordered

℞ Iodide potass.....gr. 40;
Tinct. cinchon. co..... ℥ j.;
Syrup. aurant..... ʒ ij.;
Decoct. cinchon.....ad ℥ viij.

Two tablespoonfuls thrice daily.

The eye from this went on remarkably well, the inflammation subsided rapidly, and all danger of sloughing of the cornea disappeared, the cornea began to clear, and he could distinguish objects. He left the hospital well on the 6th of May, 1872. —*Med. Press and Circular*, June 12.

Enlarged Testicle.

Dr. D. Hayes Agnew used the following for indolent enlargement of the testicle, supposed to be strumous.

The man was ordered to take ℥ ss. ol. morr., with gt. xv. syr. ferri iodidi after each meal; also, arsen. iodidi gr. 1-18 t. d. Locally to apply

℞ Ext. bellad.,
Ung. hydrarg.,
" iodine,
" adipis, aa ʒ ij. M.

If the ointment irritates the skin, it may be further diluted.—*Med. and Surg. Reporter.*

Solution for Erysipelas (Trousseau).

Take of sulphuric ether....60 parts.
" camphor.....30 "

Dissolve.

This solution is to be applied by means of a little tuft of charpie upon the erysipelatous (erythematous?) surface of newborn children.—*Union Méd.*

Ricord's Resolvent Plaster.

Take of
Plaster of vigo and
Plaster of hemlock, each.10 parts.
Extract of opium..... 1 part.

Mix and make into a plaster. To be used locally in subacute buboes and orchitis.—*Union Méd.*

Formula for Dyspepsia of Debauchees.

Dr. James R. Wood's formula is commended by Dr. B. S. Thompson, *American Practitioner*, July, 1872. It is as follows:—

℞ Tinct. valerian aromat. } aa ℥ ij.;
Lupulin..... }
Tinct. cardamom..... ℥ ss.

M. S. A teaspoonful as required.

Gun Cotton and its Preparation.

BY CHARLES H. MITCHELL.

A number of experiments were tried, with a view of ascertaining the relative proportions of cotton and acids, together with the proper time for maceration necessary to produce a cotton which should combine the largest yield with the highest explosive power and solubility. The following formula was at length adopted:

Raw cotton.....	2 parts.
Carbonate potassa.....	1 "
Distilled water.....	100 "

Boil for several hours, adding water to keep up the measure; then wash until free from any alkali, and dry. Then take of:

Purified cotton.....	7 oz. av.
Nitrous acid,* s. g. 1.42...	4 pts.
Sulphuric acid, " 1.84...	4 "

Mix the acids in a stone jar capable of holding ½ gals., and when cooled to about 80° Fahr., immerse the cotton in small portions at a time; cover the jar and allow to stand 4 days in a moderately cool place (temp. 50° to 70° Fahr.). Then wash the cotton, in small portions, in hot water, to remove the principal part of the acid; pack in a conical glass percolator, and pour on distilled water until the washings are not affected by sol. chloride barium; drain and dry. Yield, 11 oz. av.

* Nitric, saturated with nitrous acid.—*Ed. Amer. Journ. Pharm.*

This cotton is perfectly white, of a harsh, gritty fibre, very explosive, leaving scarcely any ash, soluble in ether, ether fortior, acetic ether, glacial acetic acid, and in mixture of alcohol and ether, varying from 1 part ether to 3 parts alcohol to pure ether itself. If a cotton superior to this is desired, it may be obtained by treating this cotton with an additional proportion of the mixed acids, washing and dry as before. The cotton gains about one per ct. in weight, becomes perfectly soluble, and is so free from any ash as to scarcely scorch a sheet of white paper it may be burnt on. Both this and the previous gun cotton may be ignited on gunpowder without exploding it. The advantages claimed for this cotton over that of the U. S. P. are that it is perfectly soluble, very explosive, cheap, its manufacture is much more easy, requiring but little time and attention, and turning out a superior product with large yield and less cost.

The subject of collodion next claims our attention, it being the most important pharmaceutical preparation of gun cotton. The applicability of gun cotton, in ethereal solution, to the dressing of wounds, inflamed surfaces, etc., was first made known by Dr. Horace Maynard, of Boston. Its valuable properties soon commanded attention, and at once supplied a want long felt in the medical profession. No better formula for collodion can be found than that of the U. S. P. Using the cotton prepared as before mentioned, it left nothing to be desired.

Collodion can also be made the vehicle for other medicines. Those remedies which are used externally, of course, can only be administered in this manner. Having made a number of experiments on this subject, I present the following formulæ, several of which I think are new:

Styptics.

Styptic Collodion.

℞ Tannin..... ℥ ij.
Stronger alcohol..... f ℥ iv.
Stronger ether..... f ℥ xii.
Soluble cotton..... ℥ j. ℈ ij.
Canada balsam..... ℥ j.

Introduce the cotton into a suitable bottle, pour on it 2 fluid ounces of alcohol, shake well; then add 10 fluid ounces of the ether, agitate frequently until dissolved. Dissolve the tannic acid in a mixture of the remainder of the alcohol and ether, mix with the first liquid, add the balsam, allow to stand until clear; then pour off.

Collodion with Sesquichloride of Iron.

℞ Sesquichloride of iron. ℥ j. grs. iv.
Stronger alcohol..... f ℥ iv.
" ether..... f ℥ xij.
Soluble cotton..... ℥ j. grs. iv.

Into a suitable bottle introduce the cotton, pour on 2 fluid ounces of the alcohol, and shake well; then add the ether, and agitate frequently until dissolved. Dissolve the sesquichloride of iron in the balance of the alcohol; mix with the prepared collodion.

Anodynes.

Collodion with Aconite.

℞ Pulv. aconite root... ℥ ij.
Ether..... f ℥ vj.
Soluble cotton..... ℥ j. grs. iv.
Stronger alcohol..... q. s.

Mix the ether with 2 fluid ounces of alcohol, moisten the aconite with 1 fluid ounce of this, pack in a percolator, and percolate with the balance, pouring on *q. s.* alcohol to recover 8 fluid ounces, in which dissolve the cotton.

Collodion with Belladonna.

℞ Powdered belladonna root..... ℥ ij.
Ether..... f ℥ vj.
Alcohol..... q. s.
Gun cotton..... ℥ j. grs. iv.

Mix the ether with 2 fluid ounces of alcohol, moisten the belladonna with 1 fluid ounce of this, pack in a percolator and percolate with the balance, pouring

on *q. s.* alcohol to recover 8 fluid ounces, in which dissolve the cotton.

Antiseptics and Disinfectants.

Collodion with Carbolic Acid.

℞ Carbolic acid..... ʒ j.
Ether..... f ℥ vj.
Stronger alcohol.... f ℥ ij.
Gun cotton..... ʒ j. grs. iv.

Dissolve the gun cotton in the ether and alcohol mixed, and then add the carbolic acid.

Collodion with Sulpho-carbolate of Zinc.

℞ Sulpho-carbolate of zinc ʒ j.
Ether ..... f ℥ vj.
Stronger alcohol..... f ℥ ij.
Gun cotton..... ʒ j. grs. iv.

Introduce the cotton into a suitable bottle, add 1 fluid ounce alcohol, shake well; add the ether, and agitate frequently until dissolved. Dissolve the zinc salt in the balance of the alcohol, and mix with the prepared collodion.

Collodion with Thymol.

℞ Thymol..... ʒ j.
Ether..... f ℥ vj.
Stronger alcohol..... f ℥ ij.
Gun cotton..... ʒ j. grs. iv.

Dissolve the cotton in a mixture of ether with part of the alcohol, dissolve the thymol in the balance of the alcohol, and mix.

Stimulants in Cutaneous Diseases.

Collodion with Iodide of Mercury.

℞ Mercuric iodide..... ʒ j.
Potassium iodide.... ʒ ss.
Alcohol..... f ℥ iv.
Ether..... f ℥ iv.
Gun cotton..... ʒ j. grs. iv.

Triturate the iodides together in a mortar, add the alcohol boiling, and rub until they are completely dissolved. Then add the gun cotton, lastly the ether, and agitate frequently until the cotton is all dissolved.

Stimulants and Rubefacients.

Collodion with Arnica.

℞ Pulv. arnica..... ℥ iv.
Ether..... f ℥ xij.
Stronger alcohol... q. s.
Gun cotton..... ʒ ij. grs. viij.

Mix the ether with 4 fluid ounces alcohol. Moisten the arnica with *q. s.* of this, pack in a percolator, and pour on the balance, following with alcohol until 16 fluid ounces of tincture have been recovered; to this add the cotton, and agitate frequently until dissolved.

Collodion with Capsicum.

℞ Grd. capsicum..... ℥ iv.
Ether..... f ℥ xij.
Stronger alcohol..... q. s.
Gun cotton..... 100 grs.

Proceed as in collodion with arnica, recovering 16 fluid ounces of tincture, in which dissolve the gun cotton.

Collodion with Mezereon.

℞ Mezereon..... ℥ iv.
Ether..... f ℥ xij.
Alcohol..... ..... q. s.
Gun cotton..... 128 grs.

Mix the ether with 4 fluid ounces of strong alcohol, and in this allow the mezereon to macerate one week. Drain, pack tightly in a conical percolator, pour on the separated liquid, and follow with enough alcohol to recover 16 fluid ounces of tincture, in which dissolve the cotton.

Collodion with Savin.

℞ Powd. savin leaves..... ℥ iv.
Ether.....f xij.
Alcohol.....q. s.
Gun cotton.....grs. 128.

Proceed in same manner as in collodion with capsicum.

Collodion with Black Pepper.

℞ Grd. blk. pepper..... iv.
Ether.....f ℥ xij.
Alcohol.....q. s.
Gun cotton.....128 grs.

Proceed in the same manner as in collodion with capsicum.

Vesicants.

Collodion with Cantharides.

℞ Powd. cantharides..... ʒ iv.
Ether.....f ʒ xij.
Stronger alcohol.....q. s.
Gun cotton.....80 grs.

Moisten the cantharides with a small portion of the ether, and pack in a conical percolator. Then pour on the balance of the ether, mixed with 4 fluid ounces alcohol, and follow with enough alcohol to recover 16 fluid ounces, in which dissolve the gun cotton.

These collodions can be used as substitutes for many of the officinal plasters, having the advantage of occupying a small bulk, ready adaptability to any surface, and powerful therapeutic action.

I have endeavored, as far as possible, to give some practical information on a branch of pharmacy of which comparatively little is known. The subject is, I think, an important one, since gun cotton and collodion occupy a high position in both medicine and the useful arts, and to its elaboration and useful application too much study cannot be devoted.—*Am. Journ. of Pharm.*

Churchill's Iodine Caustic.

By the kindness of Dr. William Neergaard we are able to give the formulæ as follows:—

"Churchill's iodine caustic is composed of 'Iodine, one drachm; Iodide of potassium, two drachms; Water, half a fluid ounce. Mix.'

"This mixture will be seen to be more than five times the strength of liq. iodinii co. of the U. S. Pharmacopœia, which it otherwise resembles.

"Churchill's compound tincture of iodine is: 'Pure iodine, two and a half ounces; iodide of potassium, half an ounce; alcohol, four fluid ounces; rectified spirit of wine, twelve fluid ounces. Mix them.'"—*New York Medical Journal.*

Prof. Gross's Treatment of Goitre.

Treatment will consist in stimulating the absorbent vessels, although the application of agents of too stimulating a character must be avoided, otherwise irritation will be produced, and the mass will be enlarged instead of diminished. The neck will be thoroughly washed at least once in the twenty-four hours with hot water and soap, and immediately afterwards a portion of the following ointment will be applied to the surface of the tumor and well rubbed in:—

℞ Ung. hydrarg. biniodid.... ʒ j.;
Cerat simp..... ʒ vj. M.

The patient will take internally the *Liquor iodinii compositus*, gtt. viij., in sweetened water, three times daily.

A piece of thin flannel and oiled silk will be worn around the neck. The diet will be regulated and all red meats avoided. Six grains of blue mass in combination with a grain of ipecac will be given now and then at bedtime to regulate the secretions.

Preparation of a very Active Cantharidal Plaster.

BY PROF. G. DRAGENDORFF (Dorpat, Russia).

Apothecaries frequently complain that some cantharides do not furnish an active blistering plaster; that the same furnish, even when treated with acetic ether, an extract so poor in cantharidin, that with its aid no good Druott's blistering tissue can be produced. In most cases the opinion is expressed that the flies contain too small a percentage of cantharidin. My experience teaches me to discredit the latter opinion. It is possible to obtain good preparations even from such apparently poor cantharides, it being only necessary to thoroughly extract the cantharidin they contain.

A few observations show how poorly this is commonly accomplished. According to my experience the amount of cantharidin in Spanish flies varies from 0.27 to 0.5 per cent. The coating of a vesicating tissue 20 c. m. long and 12 wide, requires about 25 grm. plaster substance,

containing usually about 6 grm. powdered Spanish flies, furnishing at least 0.016 cantharidin. 0.00002 grm. cantharidin suffice for a blistering surface of a square centimetre, or 0.0048 grm. for 240 square centimetres, or less than one-third of the smallest quantity that may be considered present in the plaster. Mechanical causes may partly be found to be the ones that prevent a thorough action of the plaster. A plaster of poor adhesiveness, not being in close contact with the epidermis, does not act because that close contact is wanting which is necessary for the absorption of the cantharidin. It is also a mistake of several pharmacopœias to permit the use of coarsely-powdered cantharides, the quantity of cantharidin in which is not uniformly distributed in the plaster, even if the powder is heated for a long time with the oil.

Other causes, unnoticed heretofore, also weigh heavily in this direction. The cantharidin is present in the Spanish flies in several different combinations, in which it is firmly held. This fact I have mentioned already in my "Contributions to Toxicological Chemistry," on the different behavior of flies towards various solvents. Cantharides with about 0·3 per cent. of cantharidin yield to water, even after repeated boiling with fresh portions of the same, only about half of their cantharidin, while the remainder is only yielded to potassa lye. In the same manner, alcohol, chloroform, and ether dissolve only 30 per cent. of the blistering substance. If all the cantharidin is to be extracted, bases like potassa or soda must be employed, which form easily soluble salts with the cantharidin. Together with Masing, I demonstrated years ago that the salts thus formed are energetic blistering agents. During the past two years reference has occasionally been made to our observation, especially by Delpech and Guichard, recommending the cantharidates of soda and potassa as vesicants.

Without alluding to this further, I would say that by the aid of soda or potassa the entire amount of cantharidin contained in the flies may be rendered active. The finely-powdered flies are mixed to a paste with diluted alkaline lye of about 1.1 sp. gr., heated in water-bath for twenty-five to thirty minutes, when sufficient muriatic acid is added to have a trifling surplus of the same, and the whole mass is dried rapidly in the water-bath. The residue, which we may call "prepared cantharides," is powdered anew and employed for the preparation of the plaster, or for the extract with acetic ether for use upon tissue. The small quantity of potassium or sodium chloride present is in no case injurious. The cantharidin is now present in the mixture in a free state. In a drug store in this city, where my proposition has been followed, no complaints have been made about the preparation.

Even for the preparation of the pure cantharidin, the above-mentioned process is worthy of attention. As I mentioned before, ether, alcohol, etc., dissolves from the cantharides, not "prepared," only a fraction of the cantharidin present.—*The Chicago Pharmacist.*